SUBLIMINAL COMMUNICATION TECHNOLOGY

HEARING

BEFORE THE

SUBCOMMITTEE ON TRANSPORTATION,
AVIATION AND MATERIALS

OF THE

COMMITTEE ON
SCIENCE AND TECHNOLOGY
U.S. HOUSE OF REPRESENTATIVES

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SUBLIMINAL COMMUNICATION TECHNOLOGY

MONDAY AUGUST 6, 1984

HOUSE OF REPRESENTATIVES,
COMMITTEE ON SCIENCE AND TECHNOLOGY,
SUBCOMMITTEE ON TRANSPORTATION,
AVIATION AND MATERIALS,
Washington, DC.

The subcommittee met, pursuant to call, at 1:30 p.m., in room 2325, Rayburn House Office Building, Hon. Dan Glickman (chairman of the subcommittee) presiding.

Mr. GLICKMAN. Today the subcommittee will focus its attention on subliminal communication technology. This subcommittee has kind of made it a theme this year to explore in addition to the other areas of our jurisdiction those things which concern the public in a kind of Orwellian sense as a result of the nomenclature of this year 1984.

We held a series of hearings on computer security and privacy. Largely those hearings led to the enactment in the House of legislation which makes it a Federal crime to tap into people's records for the purpose of obtaining financial or privacy information.

But the subject is one that has many different facets to it. This hearing today is concerned with the subject of subliminal communication.

And this, as many in this room are familiar, is a process by which an individual is presented with information without that individual being made aware specifically of that information, but to which they make a selective response.

The message, which is usually in the form of words, pictures or voices, is presented so rapidly or faintly that the person seeing or hearing the message is not consciously aware of seeing or hearing anything.

Although little is known, at least by the general public, about the exact psychological and physiological mechanisms involved in subliminal communication, there have been a number of scientific advances in the area and an increase in its application in recent years.

For example, I understand that the use of subliminal communication is used by a large number of stores throughout the country to discourage shoplifting. Using an audio device, music is combined with a subliminal message such as "I will not steal." These subliminal messages are reported to have reduced shoplifting by as much as 80 percent in some cases.

In addition, I understand that video tapes are now being marketed which use subliminal communication techniques to assist indi-

viduals in losing weight, stopping smoking, enhancing memory, lowering blood pressure, and for other purposes.

If a store is able to reduce shoplifting by up to 80 percent through subliminal communication, several serious questions naturally follow: Are such techniques also being used as successfully in increasing sales? What other uses are being made of this technology? What is the potential outcome of research in this field?

Clearly we need to take a closer look at the use of subliminal communication technology given the serious moral, ethical and legal implications posed by some of these recent innovations.

All of us remember the Vance Packard book, "The Hidden Persuaders," which I think started public attention towards this area.

I, myself, think that subliminal communication clearly has a twilight zone implication to it. And given the rapid advance in computer technology in this country, as well as psychological research, much of which is being done by the Defense Department, I think it is incumbent upon us in Congress to at least explore the issue to see how widespread it is and to see if anything needs to be done about it.

Our first witness today is Dr. John Kamp, Deputy Chief, Mass Media Bureau of the FCC. We are pleased to have you here, Dr. Kamp.

Mr. GLICKMAN. Mr. Kamp, why don't you proceed? You may feel free to read or summarize your statement, because all the statements of the witnesses will appear in the record in their entirety.

STATEMENT OF DR. JOHN KAMP, ASSISTANT TO THE DEPUTY CHIEF, MASS MEDIA BUREAU, FEDERAL COMMUNICATIONS COMMISSION, ACCOMPANIED BY CHARLES KELLEY, ENFORCEMENT DIVISION, MASS MEDIA BUREAU

Dr. KAMP. Thank you, Mr. Chairman. Good afternoon.

On behalf of Chairman Mark Fowler, I wish to thank you for inviting the FCC to participate in your hearing today. I was asked to represent Chairman Fowler on this matter at least partially because of my academic background as a social scientist, as well as my role at the Commission as a legal and policy assistant to the Mass Media Bureau Chief.

I bring with me this afternoon Mr. Charles Kelley, head of our Enforcement Division in the Mass Media Bureau. He will be with me helping answer any questions you may have at the conclusion of my testimony.

Subliminal perception has been a persistent issue at the Commission spanning over 35 years but it has seldom required significant amounts of Commission time and resources. That is largely because the Commission's stand on the issue has been clear and consistent.

The FCC's position is that the use of such techniques involves intentional deception and, thus, is inconsistent with a licensee's obligation to broadcast in the public interest. The Commission defines subliminal projection as a technique of projecting information below the threshold of sensation or awareness.

This is not the subtle but overt message delivered by the attractive model selling toothpaste, this is the message that is so subtle

the person is not intended to be at all aware of the attempt to persuade.

And it is that element—intentional deception—that has been the focus of concern at the FCC. Typical subliminal techniques are projections of visual messages of extremely short duration and transmissions of low volume audio messages that cannot be consciously perceived.

That said, two things are important to state at this juncture. First, as a social scientist I must note that there is considerable doubt in the scientific community that these techniques are very effective.

There is a whole host of problems, stemming from such things as the fact that individuals have highly varying levels of perception, making generalized threshold levels of subliminal perception very complicated. Another such problem is that to the extent that these messages are designed to change people's behavior, scientists as well as advertisers know that subtle appeals are often more interesting than they are effective.

But my second point is of more direct relevance—that the Commission's prohibition against use of this technique by broadcasters is clear regardless of whether the technique is effective or not.

The Commission's authority to regulate subliminal projection techniques when used by broadcasters stems broadly from the public interest provisions of the Communications Act, including, in particular, sections 303 and 317. Section 303 contains the provisions that give the Commission general authority to regulate the industry to further the public interest, convenience or necessity.

More specific authority in this area is contained in section 317 of the act which has been reiterated in section 73.1212 of the FCC's regulations. Essentially, these provisions prohibit covert advertisements.

They require broadcasters to identify on each broadcast any sponsor of any broadcast program or advertisement. By requiring clear identification of sponsors, the Commission seeks to ensure public awareness of the nature of the persuasion and the identity of the persuader. Subliminal projections, which are designed to sidestep conscious awareness of advertisements, have been found to be against the public interest and the spirit and the language of section 317.

The FCC enforces its prohibition on the use of subliminal projections by following up on complaints. Viewers, listeners or members of the industry alert the FCC to possible violations.

If a complaint appears to be valid, the Commission first asks the broadcast licensee for an explanation. If necessary, Commission technicians can review a copy of the programming to check for subliminal messages.

The Commission, however, receives very few complaints in this area. From 1966 to the present, complaints concerning subliminal projections have comprised no more than one-half of 1 percent of all advertising complaints.

We think this system has worked well to date because broadcasters know the position of the Commission and know its intention to act as necessary to stem any abuse. A quick review of the major cases on this issue is instructive.

The FCC first became concerned with subliminal projection techniques in 1956 after it learned about a New Jersey movie theater which flashed the words "Drink Coca-Cola" and "Hungry? Eat popcorn" every 5 seconds at the subliminal level of one three-thousandths of a second during the film.

Although an increase in sales was reported, the theater refused to release any of the details of the experiment. The first broadcast case came in 1957 when television Station WTWO tested the technique by monitoring the reaction of viewers to flashes that stated "If you have seen this message, write WTWO."

WTWO reported no increase in incoming mail. In 1958, researchers conducted an experiment on Television Station WTTV where viewers were subliminally told to "Watch Frank Edwards," a news analyst featured on the station. The researchers reported that the message had no statistically significant effect. (De Fleur and Petranoff 23 Public Opinion Quarterly 168 (1959).)

In 1957, early in this period of experimentation, the FCC published a public notice expressing its concern and asserting its jurisdiction in this area. At that time the Commission noted that subliminal messages only had been used by broadcasters for experimental purposes and that the broadcast industry trade association had announced its intention to review and consider any subliminal advertising proposals.

The 1957 notice clearly stated that the FCC considered the use of subliminal messages to the inappropriate by broadcasters. No further immediate action was judged necessary because licensees appeared to be behaving responsibly.

In 1958, the National Association of Broadcasters amended its code to bar the use of these messages. Broadcasters interest in subliminal messages appeared to wane in the face of FCC policy statements, industry prohibitions and the lack of persuasive test results.

In 1973, the issue arose briefly when the FCC received complaints that television stations had broadcast an ad which contained a subliminal message to "Get it." An FCC investigation revealed that the advertising agency which produced the advertisement had already dispatched telegrams to the stations informing them of the existence of the subliminal message and authorizing them to delete it.

Some stations, however, continued to broadcast the advertisement containing the "Get it" message. The FCC took the occasion to clarify its position and issued a public notice which stated: "We believe that use of subliminal perception is inconsistent with the obligations of a licensee * * * Broadcasts employing such techniques are contrary to the public interest. Whether effective of not, such broadcasts clearly are intended to be deceptive." (Broadcast of Information by Means of "Subliminal Perception" Techniques at 44 F.C.C. 2d 1016 (1974).)

That statement in 1974 continues to contain the essence of Commission policy on this issue, and it appears to be good law and good social policy. As noted above, our complaint level is now so low as to be only a persistent trace at the agency reflecting, as far as we can tell, more public fascination with this issue and concern over the undesirable manipulative possibilities of the technique than evidence of any actual use.

Nothing in the information flowing into the Commission at this time has suggested the need for any new Commission initiative in this area. However, it is a matter that clearly warrants continuing scrutiny, for were the techiques shown to be effective or new techniques developed and used, the manipulative possibilities would clearly warrant further governmental concern.

In the meantime, we think this is good law because it has consumed a minimum amount of Commission resources. The Commission has established its position, made it clear to the industry, and stood ready to enforce it. Thus, it has been able to concentrate its resources on other major matters.

That concludes my formal remarks. Again, I thank you for this opportunity to appear, and I will be glad to remain to answer any questions you may have. In that regard, Mr. Charles Kelley, Chief of the Enforcement Division of the Mass Media Bureau is also here to help you.

Thank you.

Mr. GLICKMAN. Thank you, Dr. Kamp.

So you have not received any complaints recently regarding the use of subliminal advertising.

Dr. KAMP. We receive complaints from time to time, perhaps one a month or so. But we have not yet, or have not recently, in the last several years, received a complaint that on its face was sufficient for us to warrant a major investigation.

We have in those cases where we received complaints that appear to raise valid problems, we oftentimes first ask the complainant to give us further information, if he has it, and if we do have it, then we go to the station.

But very recently, over the past few years, there has been no major complaint.

Mr. GLICKMAN. But you do investigate each one of these complaints?

Dr. KAMP. It depends. In most cases we ask, we begin by asking the complainant for further information. And if the complainant comes forward with that, then we do a further investigation.

But very seldom do we receive information from the complainant about the matter that causes us to have a further—to ask for further information.

Oftentimes, for example, and one very recent one we received just a few weeks ago, indicated to us that what was happening was that there was a strong image on the TV screen, and that was caused not by an attempt to subliminally send a message, but had to do with some problems with the technical aspects of the sending unit at the station, and when that was pointed out to the technicians at the station, we found that the problem had gone away.

Mr. GLICKMAN. How do you know if subliminal messages are or are not being used during television and radio commercials?

Dr. KAMP. Well, one—the strange parts of this, it is a catch-22, of course. If you know it is there, it is not subliminal.

We don't know unless there is a complaint sent to us. As it turns out, of course, the complaint system at the Commission works very well.

Subliminal perception is such that what is subliminal to one person is not necessarily subliminal to another. And an effective

subliminal technique almost always is perceptible to some people, because their perceptions are much quicker than others.

So it will be seen relatively soon by people in the audience, and there will be a complaint.

What happens usually, however, is that other people in the industry concerned about the industry itself and the effect of what a competitor might be doing, complains to us, and that is where we get most of our complaints.

Mr. GLICKMAN. Do you have a definition of the word "subliminal" in your rulemaking?

Dr. KAMP. We have a definition in our public notice. I paraphrased it in my remarks, but it essentially has to do with a technique that is designed to persuade people that comes below the usual level of awareness.

Mr. GLICKMAN. Now, for example, then, let's say during the broadcasting of a religious program on TV, if the message subliminally was focused across the screen "Honor your father and your mother," which on its face is a fairly benign message, that would violate the Commission's rules; is that correct?

Dr. KAMP. Under the current system, yes. We have not had a case like that of a message that would normally be construed as socially desirable, nor a challenge to our existing rules based on those kinds of facts.

And so I am not sure what the Commission might do in that sort of a situation. The example you give would seem to be one that would be very difficult for us to mount a firm challenge to the person who suggests that one should "honor thy father and mother."

But the Commission for the most part tries to stay out of any content-based decisions because of the sensitive first amendment issues that arise here.

Mr. GLICKMAN. But your basic testimony then—the thrust of your testimony is the Commission rules apply when products are being sold rather than when ideas are being brought across the television screen?

Dr. KAMP. I think what the Commission would do—the Commission under its general public interest standard may look at ideas being sold subliminally in much the same way as it now looks at products.

But your question implies the correct answer. That is the focus of this issue at the Commission to date has been in advertising areas where products are being sold.

Mr. GLICKMAN. Do you know if other Federal agencies have gotten involved in this issue—the FTC, for example?

Dr. KAMP. Yes. The Federal Trade Commission does have some authority under the FTC statute which allows them to regulate unfair or deceptive ads where there is an effect on interstate commerce.

The FTC's authority operates separate from ours, of course, in that the FTC statute that gives the FTC authority to regulate excepts the broadcasting industry. So the Federal Communications Commission has authority where a broadcaster is involved and the FTC has authority where all other advertisers are involved.

But it is interesting to note that the question that you ask me may be answered somewhat differently by the FTC, because the FTC looks at it is somewhat more limited than that of the FCC.

The FTC has to have a demonstrated proof that the ad is unfair or deceptive, and then that has a negative effect on interstate commerce. So there could very well be different answers to very similar questions.

Mr. GLICKMAN. Well, we are going to hear from some witnesses who have more experience in the mechanics of it and the technology of it. Just as one private citizen, I would think the American public would be very, very reluctant under any circumstances, no matter how socially desirable the message is, to know that they are being subliminally interfered with without their permission.

So I would just encourage you to keep a watch fully on this. I think with technology, the ability to modify tape in ways that we never dreamed of before, both video tape as well as audio tape, I think the kind of things that may have not occurred in the past could occur in the future.

Dr. KAMP. I think that you are absolutely right on that. "Honor your father and mother" is something that might be very difficult to disagree with, but you might take a message like "drink more milk" that could be embedded in some communications and although that might seem socially desirable at the first level, you might also note that there could be commercial or industry interest in the commercial aspects of it, and that it also could be exposed to people for whom the drinking of more milk might be undesirable, people that had a propensity for heart trouble or for some reason were allergic to milk products.

So it is not easy in many cases to tell the difference between a socially desirable message and a socially undesirable message. But I will continue to honor my father and mother and the Commission will continue to take a watchful eye on these kinds of matters.

Mr. GLICKMAN. Yes. We would not want to see any message like "reelect your Congressman".

Dr. KAMP. It depends on which Congressman. [Laughter.]

Dr. GLICKMAN. That is right.

Thank you very much for your testimony today. We appreciate it.

Mr. KAMP. Thank you, sir.

[The prepared statement of Dr. Kamp follows:]

STATEMENT

OF

DR. JOHN KAMP

MASS MEDIA BUREAU

Good morning Mr. Chairman and members of the Committee. On behalf of Chairman Mark Fowler I wish to thank you for inviting the Federal Communications Commission to participate in your hearings today. I was asked to represent Chairman Fowler on this matter at least partially because of my academic background as a social scientist as well as my role at the Commission as a legal and policy assistant to the Mass Media Bureau Chief.

Subliminal perception has been a persistent issue at the Commission spanning over 35 years but it has seldom required significant amounts of Commission time and resources. That is largely because the Commission's stand on the issue has been clear and consistent. The Federal Communications Commission's (FCC) position is that the use of such techniques involves intentional deception and, thus, is inconsistent with a licensee's obligation to broadcast in the public interest. The Commission defines subliminal projection as a technique of projecting information below the threshold of sensation or awareness. This is not the subtle but overt message delivered by the attractive model selling toothpaste, this is the message that is so subtle the person is <u>not</u> intended to be <u>at all aware</u> of the attempt to persuade. And it is that element -- intentional deception -- that has been the focus of concern at the F.C.C. Typical subliminal techniques are projections of visual messages of extremely short duration and transmissions of low volume audio messages that cannot be consciously perceived.

That said, two things are important to state at this juncture. First, as a social scientist I must note that there is considerable doubt in the scientific community that these techniques are very effective. There is a whole host of problems, stemming from such things as the fact that individuals have highly varying levels of perception, making generalized threshold levels of subliminal perception very complicated. Another such problem is that to the extent that these messages are designed to change people's behavior, scientists as well as advertisers know that subtle appeals are often more interesting than they are effective. But my second point is of more direct relevance -- that the Commission's prohibition against use of this technique by broadcasters is clear regardless of whether the technique is effective or not.

The Commission's authority to regulate subliminal projection techniques when used by broadcasters stems broadly from the public interest provisions of the Communications Act including in particular Sections 303 and 317. Section 303 contains the provisions that give the Commission general authority to regulate the industry to further the public interest, convenience or necessity. More specific authority in this area is contained in Section 317 of the Act which has been reiterated in Section 73.1212 of the FCC's regulations. Essentially, these provisions prohibit "covert advertisements." 47 U.S.C. Section 317 (1981); 47 C.F.R. Section 73.1212 (1983). They require broadcasters to identify on the broadcast any sponsor of any

broadcast program or advertisement. By requiring clear identification of sponsors, the Commission seeks to ensure public awareness of the nature of the persuasion and the identity of the persuader. Subliminal projections, which are designed to sidestep conscious awareness of advertisements, have been found to be against the public interest and the spirit and the language of Section 317.

The FCC enforces its prohibition on the use of subliminal projections by following up on complaints. Viewers, listeners or members of the industry alert the FCC to possible violations. If a complaint appears to be valid, the Commission first asks the licensee for an explanation. If necessary Commission technicians can review a copy of the programming to check for subliminal messages. The Commission, however, receives very few complaints of subliminal messages. From 1966 to the present complaints concerning subliminal projections have comprised no more than one half of one percent of all advertising complaints. We think this system has worked well to date because broadcasters know the position of the Commission and know its intention to act as necessary to stem any abuse. A quick review of the major cases on this issue is instructive.

The FCC first became concerned with subliminal projection in 1956 after it learned about a New Jersey movie theatre which flashed the words "Drink Coca-Cola" and "Hungry? Eat popcorn" every five seconds at the subliminal level of 1/3000th of a second during the film. Although an increase in sales was reported, the theatre refused to release any

of the details of the experiment. The first broadcast case came in 1957 when Television Station WTWO tested the technique by monitoring the reaction of viewers to flashes that stated "If you have seen this message, write WTWO." WTWO reported no increase in incoming mail. In 1958, researchers conducted an experiment on Television Station WTTV where viewers were subliminally told to "Watch Frank Edwards," a news analyst featured on the station. The researchers reported that the message had no statistically significant effect. De Fleur and Petranoff 23 Public Opinion Quarterly 168 (1959).

In 1957, early in this period of experimentation, the FCC published a public notice expressing its concern and asserting its jurisdiction by noting that the use of subliminal projections "vitally concerns the public interest." At that time the Commission noted that subliminal messages only had been used by broadcasters for experimental purposes and that the broadcast industry trade association had announced its intention to review and consider any subliminal advertising proposals. The 1957 notice clearly stated that the FCC considered the use of subliminal messages to be inappropriate. No further immediate action was judged necessary because licensees appeared to be behaving responsibly.

In 1958, the National Association of Broadcasters amended its code to bar the use of subliminal projections. Broadcasters interest in subliminal messages waned in the face of FCC policy statements, industry prohibitions and the lack of persuasive test results.

In 1973, the issue arose briefly when the FCC received complaints that television stations had broadcast an advertisement which contained a subliminal message to "Get it." An FCC investigation revealed that the advertising agency which produced the advertisement had already dispatched telegrams to the stations informing them of the existance of the subliminal message and authorizing them to delete the message. Some stations, however, continued to broadcast the advertisement containing the "Get it" message. The FCC took the occasion to clarify its position and issued a public notice which stated: "We believe that use of subliminal perception is inconsistent with the obligations of a licensee... [B]roadcasts employing such techniques are contrary to the public interest. Whether effective or not, such broadcasts clearly are intended to be deceptive." Broadcast of Information by Means of "Subliminal Perception" Techniques at 44 F.C.C. 2d 1016 (1974).

That statement in 1974 continues to contain the essence of Commission policy on this issue, and it appears to be good law and good social policy. As noted above, our complaint level is now so low as to be only a persistent trace, reflecting, as far as we can tell, more public fascination with this issue and concern over the undesirable manipulation possibilities of the technique than evidence of its actual use. Nothing in the information flowing into the Commission has suggested the need for any new Commission initiative in this area. However, it is a matter that clearly warrants continuing

scrutiny, for were the techniques shown to be effective or new techniques developed, the manipulative possibilities would clearly warrant governmental concern. In the meantime, we also think this is good law because it has consumed a minimum amount of Commission resources. The Commission has established its position, made it clear to the industry, and stood ready to enforce it. Thus, it has been able to concentrate its resources on other matters.

That concludes my formal remarks. Again, I thank you for this opportunity to appear, and I will be glad to remain to answer any questions you may have. In that regard, Mr. Charles Kelley, Chief of the Enforcement Division of the Mass Media Bureau is also here to help you.

Thank you.

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January 24, 1974 - 8

BROADCAST OF INFORMATION BY MEANS OF "SUBLIMINAL PERCEPTION" TECHNIQUES

Shortly before Christmas 1973 the Commission received a few complaints that some television stations had broadcast an advertisement which contained a statement of such short duration that most viewers were unaware of it -- at least, consciously unaware of it. The message broadcast in this manner was "Get It," referring to the product advertised in the commercial. Since this statement could not be consciously perceived by most persons, it involved use of the "subliminal perception" technique which was the subject of Commission inquiry years ago.

In a Public Notice dated November 27, 1957, the Commission noted that the Television Code Board of the NAB (then the NARTB) had asked its subscribers to refer any proposals for television use of subliminal perception to the Board. In that Notice, the Commission stated in part:

> Deep concern has been expressed by members of the public, the broadcast industry and leaders in public life with respect to the use of "subliminal perception" advertising by television stations. That this concern has a firm basis is evidenced by the action of the NARTB and the caution with which television licensees have approached the technique. Obviously, it is a matter which vitally concerns the public interest. Accordingly, the Commission's study is being directed toward determining what appropriate steps, if any, should be taken by the Commission with respect to the possible use of the above technique by the television licensees. The posture of the problem is such that the public interest is not in immediate danger of being adversely affected. Ample proof has been given of the recognition by television licensees of their responsibilities and obligation to operate their stations in the public interest.

At that time the Commission had no information that any television station had made use of subliminal perception techniques, except on an experimental basis and for scientific purposes, and after 1957 no instance of telecasting

of such messages came to the attention of the Commission until the 1973 pre-Christmas advertising campaign, in which an advertising agency distributed spots involving the "Get It" statement.

Commission inquiry revealed that the NAB TV Code Authority had learned of the use of the subliminal messages in late November and had received a statement from the advertising agency that it was dispatching telegrams to all stations to which the advertisements had been sent, informing them of the subliminal statements, authorizing the stations to delete the statements from the spots and informing the stations that film prints which did not contain the "Get It" flashes would be sent to them. (The Television Code now prohibits use of "Any technique whereby an attempt is made to convey information to the viewer by transmitting messages below the threshold of normal awareness . . .")

Despite the Code Authority's action, some stations apparently continued to broadcast spots containing the "Get It" statement, and some state they have no record of having received the telegram from the agency.

We believe that use of subliminal perception is inconsistent with the obligations of a licensee, and therefore we take this occasion to make clear that broadcasts employing such techniques are contrary to the public interest. Whether effective or not, such broadcasts clearly are intended to be deceptive.

In closing, we note that the Federal Trade Commission also received a complaint about the pre-Christmas announcements, and that it is making inquiry into the matter in light of the laws that it administers.

Action by the Commission January 23, 1974. Commissioners Burch (Chairman), Lee, Reid, Wiley and Hooks.

Sent to all broadcast licensees.

- FCC -

SUBLIMINAL PROJECTION

11/77

INFORMATION BULLETIN

Definition

"Subliminal projection" is a technique of projecting information below the viewing audience's threshold of sensation or awareness. It involves flashing a message lasting only a fraction of a second on the television screen. Theoretically, a viewer could receive such a message without realizing he or she had observed it.

On-The-Air Trials

The Commission is aware of only a few cases of television stations' engaging in on-the-air experiments using "subliminal projection" as an advertising technique.

Maine Tests

During a two-week period in September 1957, WTWO, Bangor, Maine, tested subliminal messages in station promotional announcements. The words "if you have seen this message, write WTWO" were flashed every 11 seconds for 1/80th of a second, on alternate days. The station said there was no noticeable increase in WTWO's mail, so the experiment was abandoned.

Indiana Study

During a five-week period in the Spring of 1958, two members of the Indiana University faculty, Melvin L. DeFleur, Assistant Professor in the Department of Sociology, and Robert M. Petranoff, Lecturer in the Department of Radio and Television, conducted a combined closed-circuit and on-the-air subliminal projection experiment over WTTV, Bloomington, Indiana. The Summer 1959 edition of the Public Opinion Quarterly (Vol. 23, No. 2, pp. 168-180) contains a report on their "Televised Test of Subliminal Persuasion."

Subliminal Projection - 2

Experiments

The first known experiment with subliminal projection occurred in 1956, when a special projector was installed in a Fort Lee, N.J., movie theater by a New York City firm, Subliminal Projection Co., Inc. During a six-week period, patrons reportedly were exposed to two advertising messages projected subliminally on the screen during the regular presentation of the motion picture "Picnic."

The words "Drink Coca-Cola" and "Hungry? Eat Popcorn" were flashed on the screen every five seconds at the subliminal level of 1/3000th of a second. Although the Subliminal Projection Co. reported that the sale of popcorn and Coca-Cola increased as a result of this stimulation, it refused to release either its statistical data or the details of the experimental study.

The first television experiment with subliminal projection also occurred in 1956 in England. The BBC-TV, on a regular broadcast, transmitted a message at a speed assumed to be subliminal. At the end of the program, viewers were asked to report whether they had noticed anything unusual. Of the relatively few responding, only a small percentage correctly identified the message. Considering the few responses, it was suggested that some of the viewers possessed thresholds sufficiently low that, for them, the message was supraliminal.

On January 19, 1958, during a half-hour CBC-TV network program carried on 27 Canadian stations, an undisclosed subliminal message was flashed on the screen 352 times, alternately 1/5 and 1/2 of a second in duration. Viewers were asked to report their reactions. The CBC said the experiment proved inconclusive as to the effectiveness of the technique.

Audio Tests

Early in 1958, some radio licensees reported experiments with an audio version of subliminal perception. Short, barely audible phrases designated "phantom spots" were pre-recorded by disc jockeys and faded in under musical recordings or dropped into pauses in their dialogue in quick low voices.

Stations WAAF, Chicago; WCCO, Minneapolis; KLTI, Longview, Texas; KOL, Seattle; and KYA, San Francisco, reportedly experimented with these so-called "added recall devices." However, it should be noted that these whispered quickie announcements were in fact consciously audible to the listening audience, and accordingly could not truly be termed subaudible messages.

Public Concern

From the Fall of 1957 through the Spring of 1958, subliminal advertising received extensive coverage in the news media. As a result, the Commission received numerous inquiries about the new technique.

The questioners complained that the technique was being used as an advertising medium for the invisible transmission of messages on television as well as on movie screens. Widely publicized opinions contended the technique was a "sneaky" advertising device used to influence audiences to react, in a manner contrary to their normal likes and dislikes, to information they could not "see" or "hear". The inquiries expressed alarm at the enormous political possibilities in a technique that they alleged could be used to brainwash Americans with foreign ideologies.

Questions were raised about the ethics of televising concealed information because of the possible effects on audiences.

A Commission investigation made the following contacts:

1. In October 1957, with the two major companies known to be promoting "subliminal projection" for information concerning their work in this new technique.

2. With Experimental Films, Inc., a company said to have a patent application then pending in the United States Patent Office for a process of subliminal communications that would compete with Subliminal Projection Co., Inc. The FCC asked whether the facilities of any network or television station had been used for application of the techniques.

3. With the major television networks as to whether they had engaged in "subliminal perception" advertising. Each network stated it had not, and the Columbia Broadcasting System said it had no intention of using the technique in the immediate future.

4. With WTWO, the television station in Bangor, Maine, concerning reports that it had experimented with on-the-air tests of subliminal advertising. WTWO reported on its September 1957 experiment and the consequent negative reaction.

5. With the Television Code Board of the then-named National Association of Radio and Television Broadcasters (NARTB) (now the National Association of Broadcasters) which had issued a news release on "Subliminal Projection", stating that it had recommended to its subscribers that "any proposals to use the television medium in the process called subliminal perception be referred to the board immediately for review and consideration," and that "experimentation or use of the process should not be permitted on the television broadcast medium pending such review and consideration."

Congressional Request

A letter from then U. S. Representative William L. Dawson of Illinois urged the FCC to request that networks and all television stations "forego" subliminal advertising pending a Commission study. On November 27, 1957, the Commission wrote to Representative Dawson stating that since the FCC's consideration of the issue must be governed by the Commission's authority under law, a warning to licensees was inappropriate at the time.

FCC Public Notice

On November 27, 1957, the Commission issued a Public Notice (FCC 57-1289) entitled Use of Subliminal Perception Advertising by Television Stations, noting that the FCC recognized subliminal perception was a matter vitally concerning the public interest and pointing out that the cautious approach of television licensees in use of the technique offered ample proof of their recognition of the public interest.

Public Safeguards

On October 24, 1957, then Senator Charles E. Potter of Michigan wrote to the Commission asking: "Does the [Communications] Act cover the use of this technique; if so, what section? Is it covered under 'public interest' section? How can a Federal Communications Commission ruling be obtained on this technique?"

In its reply, the Commission pointed out the general applicability of the Communications Act. It noted that there was no specific language in the Act anticipating subliminal projection but said reasonable public protection was available under the general provisions of the Act.

For instance, through the Commission's licensing procedures, the United States maintains control of and regulates radio transmissions in interstate commerce. Various sections of the Act, including Section 303, make it clear that in exercising control and regulation the Commission must be guided by public interest, convenience, or necessity.

In addition, the FCC said "subliminal perception" techniques might be subject to the Commission's rulemaking authority under Section 303 subparagraph (b) on the nature of the service to be rendered by each station; subparagraph (a) on the types of apparatus to be used; subparagraph (g) authorizing studies of new and experimental uses; and subparagraphs (f) and (r) as well as Section 4, subparagraph (i) giving the Commission wide authority to make rules and regulations in carrying out its functions and the provisions of the Act.

Under existing law, the Commission does not determine the particular programs or types of programs to be presented over the air, the contents of advertising copy, or its method of presentation. Moreover, Section 326 prohibits the FCC from censoring broadcast material, including advertising. However, regulation of "subliminal perception" would not necessarily constitute censorship.

Ever since it became apparent that broadcasting was developing along commercial lines, Government regulation has upheld the principle that listeners and viewers are entitled to know who is trying to persuade them. As far back as the Radio Act of 1927 and continuing with Section 317 of the Communications Act of 1934, there has been an unvarying requirement that all matter broadcast by any station for a valuable consideration is to be announced as paid for or furnished, and by whom.

During the 1957-1958 period of Congressional and public concern over subliminal advertising, Section 317 of the Communications Act read as follows:

> All matter broadcast by any radio station for which service, money, or any other valuable consideration is directly or indirectly paid, or promised to or charged or accepted by, the station so broadcasting, from any person, shall, at the time the same is broadcast, be announced as paid for or furnished, as the case may be, by such person.

Undoubtedly Section 317, then and now, would prohibit broadcasters from subjecting audiences to messages received from undisclosed sources.

Application of Section 317 to sponsored subliminal program material presented, for example, at five-second intervals, would, in practical effect, ban unrestricted use of the technique. In addition, Sections 73.1212 and 76.22[illegible] (applicable to broadcasting and cable television, respectively) of the Commission's Rules require that sponsored program matter be announced as such. Therefore, it appears that sponsored telecast or cable-originated material that is subliminally projected falls within these rules.

Demonstration of Techniques

On January 13, 1958, the Commission, certain members of Congress and the news media witnessed a demonstration of subliminal projection on closed-circuit television facilities provided by WTOP-TV, Washington. The Subliminal Projection Co., Inc., conducted the demonstration.

Short messages were flashed subliminally (1/20 of a second) at five-second intervals during a showing of "The Gray Ghost." The messages were made visible to the audience later.

The company explained that the key elements of subliminal perception are speed and intensity of image. If intensity of the image (brightness) is decreased as length of viewing period is increased, the message presented can be kept below the threshold of conscious perception. The company's technique used low contrast and brightness.

The company offered the Commission assurances that this type of communication could not persuade or influence -- it could only remind; that an individual's perceptual defenses subconsciously rejected an unwanted message. In other words, a subliminal message cannot make a person do something he really does not want to do. The company argued the two-fold advantages of subliminal advertising were that the audience could enjoy television programs without interruptions and the advertiser could present his sales message when viewing attention was at its highest.

On February 13, 1958, representatives of the Precon Process and Equipment Co. of New Orleans addressed the Commission and members of the National Association of Broadcasters (NAB) in Washington, presenting a demonstration of its process and equipment.

At the May 1958 convention of the NAB, its TV Code Review Board amended the NAB Television Code and banned subliminal perception. Current editions of the NAB's radio and television codes state: "Any technique whereby an attempt is made to convey information to the listener [TV code says "viewer"] by transmitting messages below the threshold of normal awareness is not permitted."

Subliminal Projection - 8

On February 8 and March 12, 1958, Representatives Wright and Hosmer introduced Bills H. R. 10802 and 11363, "to make unlawful the use of subliminal advertising on television and prescribing penalties." Both bills were referred to the House Committee on Interstate and Foreign Commerce, but no hearings were held. Mr. Wright reintroduced his bill January 9, 1959, H. R. 1998. Again, the bill was referred to but never reported out of the committee.

Complaints Received

In November 1962, complaints were received that an announcer on the CBS program "To Tell the Truth" had told the audience it was seeing a subliminal advertisement during the program credits. The announcement proved to be false and CBS took steps to ensure the hoax would not be repeated.

Shortly before Christmas 1973, the Commission received complaints that some television stations had broadcast an advertisement containing a statement of such short duration that most viewers were unaware of it -- or at least consciously unaware of it. The message was "Get It", urging purchase of the produce advertised in the commercial.

An FCC inquiry disclosed that the NAB TV Code Authority had learned of the use of the subliminal message in late November and had received a statement from the advertising agency that it was sending telegrams to all stations to which the advertisements had been sent.

The agency told the Code Authority it was informing the stations of the subliminal statements, authorizing them to delete the statements from the spots, and telling them that film prints that did not contain the "Get It" flashes would be sent to them. Despite the Code Authority's action, some stations apparently continued to broadcast the subliminal spots, and some said they had no record of having received the telegram from the agency.

On January 23, 1974, the FCC adopted a Public Notice which it sent to all its broadcast licensees and which stated, in part:

> We believe that use of subliminal perception is inconsistent with the obligations of a licensee, and therefore we take this occasion to make clear that broadcasts employing such techniques are contrary to the public interest. Whether effective or not, such broadcasts clearly are intended to be deceptive.

Mr. GLICKMAN. Our next witnesses are a panel of Dr. Hal Becker, president of Behavioral Engineering Corp.; Mr. David Tyler of Proactive Systems. Both of these businesses, I believe, are engaged in either manufacturing or selling subliminally related techniques that are sold to private concerns.

Why don't we have you both up here.

Dr. Becker, why don't we start with you since you are listed first on the witness list. As I said before, your statements will appear in the record in their entirety so you may proceed as you wish.

Try to keep your remarks limited to 10 minutes.

STATEMENTS OF DR. HAL C. BECKER, PRESIDENT, BEHAVIORAL ENGINEERING CORP.; AND DAVID TYLER, PRESIDENT, PROACTIVE SYSTEMS

Dr. BECKER. I was going to have a tough time with 20 minutes. But I will do what you say.

Mr. GLICKMAN. Let's compromise on that, then.

Dr. BECKER. In order not to ramble, I am simply going to read some excerpts from the copy that I have already provided the committee.

I have sent the committee seven documents and a set of pictures from slides that I intend to present, four slides, if there should be time, of the new programmable subliminal audio——

Mr. GLICKMAN. We would like to see those slides, whenever you are ready to show them.

Dr. BECKER. Audio and video processors. OK. Fine. And in this connection, it is important to state that these subliminal processors are made available only to qualified professionals for therapeutic, educational and training purposes through a set of restrictive use covenants that specifically exclude their use in advertising, politics, religion, or any area other than therapy, education and training.

I intend to recommend that the Congress and the FCC carefully reevaluate the FCC's public notice pronouncements over the last 30 years with a progressive view towards the possible use of subliminal audio and video messages focus on, for example, courteous and defensive driving, crime and loss prevention, and possibly even substance abuse.

I believe that subliminal communication properly carried out just might be the only immediately available way to bring motor vehicle accidents, crime, and substance abuse back into manageable status.

All three currently seem to be escalating, while not really responding to conventional time honored methods of treatment. And regarding Dr. Kamp's presentation, in which he said that the FCC still considers the use of subliminals deceptive, I, of course, agree with that.

However, I should like to point out that if a crawler were placed on the screen saying you are receiving subliminal messages, video and audio messages, for substance abuse, courteous and defensive driving, crime prevention, that that might make it more acceptable to the FCC and to Congress.

Both subliminal perception and hypnosis address non-conscious portions of the mind. Work by Corrigan and Becker in 1954 and

1965, 1966, 1977, 1978, Dixon, Silverman & Shevrin, have presented evidence—and many others—have presented evidence to indicate that nonconscious perception of stimuli can result in behavior change.

In extensive research, Silverman has demonstrated that verbal stimuli associated with conflictual wishes have brought about behavior change. Silverman also in a comprehensive report of studies using a method that he calls subliminal psychodynamic activation designed to study the impact of Freudian motives in the laboratory listed three types of studies—and I am not going to go into those, since Dr. Silverman is here and on the panel with Dr. Shevrin, and as I understand the intent of the committee, they are going to handle that, I am sure, very adequately.

So I would like to get back to the technology involved. In that same year, 1954, Corrigan and Becker provided what appears to be the first sound evidence that new and useful information can be subliminally communicated to the unconscious and then used successfully at a later time at the conscious level in a problem solving situation, a significant reduction in the solution time of anagrams, after tachistocopic subliminal presentation of the unscrambled words.

That is what led Becker into the technology of instrumentation for Dr. Corrigan's doctoral program at Tulane University, Department of Psychiatry and Neurology in New Orleans, and also led Becker ultimately, after having an engineering degree and a masters in physics and biophysics, into the softer sciences, and I apologize to my softer science comrades here.

But as opposed to the hard sciences of physics and engineering—into much later securing a doctorate in behavioral science and psychology in an interdisciplinary Ph.D. program from the Department of Psychology at Tulane.

Several subliminal processes resulted from my work and my interest with Dr. Corrigan's project. It became pretty obvious to all of us at Tulane, after the dramatic results we got with tachistocopic visual presentation of the solution of anagram problems, that somewhere down the line we were going to see at least the possibility for the use of subliminals properly designed and properly presented, video and audio, in education, therapy, training, and in commerce, and industry in the form of crime prevention, shop lifting prevention, loss prevention in general, increase in safety procedures, and we have been able to demonstrate that over the years in reduction in workmen's compensation claims, in reduction of apprehensions by security officers in supermarkets and department stores, and also by a reduction of 60 percent in the annual turnover of employees in a chain of over a hundred supermarkets in which we had nine stores equipped with our experimental equipment.

Several subliminal processors are now being produced by my company and the two—because of trying to conserve time here—the two that are most relevant, I suppose, to discuss, and I won't go into the technical functioning of these at this moment—if anyone is interested later, I would be happy to go into that—are what we call the Mark III-B programmable subliminal audio processor, and the Mark III programmable color video subliminal processor, both of which I will show you pictures of in a few minutes.

Now, I would like to just quote a few paragraphs from a letter I wrote to Senator Paul Tsongas in February of 1981 at his request. I said:

Dear Senator, I am happy to respond to your request for information on my company's activities in the beneficial applications of subliminal communications.

I wish to assure you that I intend to cooperate in every reasonable way with you and other responsible officials. In this vein, I have enclosed curriculum vitae and so on; also selected photocopies of media publications which represent my selection of a minimal number of related items in both the "for" and the "against" categories, some in my opinion are clearly irresponsible and inflammatory.

I won't go into that either, since that is now already in your hands in the material I sent you.

Some public officials have operated with open minds in bringing the latest information on crime prevention to the attention of those who are in a position to use it. For example, Attorney General Billy Guste, State of Louisiana, has been conducting seminars on shop lifting.

Remember this was written in 1981.

On shop lifting in various cities over the last few months, and it has been my honor to participate in two of those seminars recently in Louisiana, in Shreveport, and in Lake Charles.

Attorney General Guste and certain other responsible officials realized that crime, juvenile crime and adult crime, are no longer responding effectively to conventional methods. They also seem willing to consider the possibility that subliminal techniques just might be one of the most effective and economical methods of crime prevention ever discovered.

All seem to agree that prevention is a strategem for success in future handling of crime. It is clear to all of us that prevention is enormously better than detection and apprehension, both for the private individuals involved and the authorities, and obviously also the taxpayers.

Once again, I repeat: "Neither my company nor I have ever used subliminals in any advertising."

Mr. GLICKMAN. Have you been contacted by politicians or religious fanatics seeking your help in perhaps subliminally converting people?

Dr. BECKER. Many times. And I have always declined.

Mr. GLICKMAN. So you don't go ahead and make every installation of those black boxes that people want, then, right?

Dr. BECKER. Absolutely not, correct.

Mr. GLICKMAN. Have you limited yourself? I am going to start asking you questions now, if I might, because I know you are basically known as the king of subliminal entrepreneurs.

Dr. BECKER. Thank you, sir—I think.

Mr. GLICKMAN. To whom do you limit your sales of this device—to groups that are engaged in retail operations?

Dr. BECKER. I have phased out of the retail and commercial and industrial applications and am now limiting myself to applications in therapy, education, and training, and a witness to that fact, Dr. Buddy McPhilamy from Roanoke, VA, and his people, are here.

Dr. McPhilamy is currently producing a series of therapeutic substance abuse color video cassettes and is using my color video process, subliminal process, and audio processor, to provide video and audio for this service.

Mr. GLICKMAN. Have you used this on people who have been convicted on drug offenses?

Dr. BECKER. I would have to ask him to answer that question. I don't know the answer to it. My consulting activities with him

have been principally in the applications of the technology which I and my engineers developed.

Mr. GLICKMAN. Now, I am reading from OMNI magazine, February of 1981. They are talking about one of your boxes. It says here, "Another box whispers encouragement in a New York real estate office," I quote: "My time is valuable, dollars now, reward is coming, I feel good." Is this the kind of therapeutic activity that you are more involved in right now?

Dr. BECKER. I am not involved in any of that right now, as I attempted to state. I phased out of that activity more than a year ago.

And I don't know of anyone I could recommend who is currently doing that kind of thing. It is entirely probable that Proactive Systems, from what I understand in reading Mr. David Tyler's statement a few minutes ago is not involved in that kind of subliminal communication or as they call it subliminal messaging, although they are involved heavily in theft deterrent and loss prevention, as I understand it.

And I might add this, for whatever it is worth, that my patents expired in 1983, the year before 1984, and apparently from what I understand, although I have not firsthand seen the patents that Proactive Systems has, they have proceeded right down this same research and development and application line that I was proceeding on when I decided to semi-retire, and phase out of the retail marketing of subliminal devices.

Mr. GLICKMAN. When you talk about therapeutic, you mentioned, of course, drug and alcohol use. In this OMNI magazine, it says the Administrator of a hospital in Gladstone, MO, said: "Since we started using the relaxation tape, fainting in our intravenous clinic is no longer a serious problem."

Is this the kind of thing we mean when we are talking about therapeutic activity?

Dr. BECKER. Yes. We have done systems like that for various medical and dental clinics, and with about the same results that we got at the McDonagh Medical Center, which were hard numbers. Most of the other results are anecdotal.

Mr. GLICKMAN. Why don't you go ahead? I am sorry to interrupt you.

Dr. BECKER. That is OK. I wanted to add, regarding the question you asked earlier, about the use of what I call human resource potentiation, subliminal affirmations, and veridicals.

Mr. GLICKMAN. Explain that.

Dr. BECKER. OK. An affirmation I define as something like "I am honest, I will not steal."

A veridical is a universal truth like "My job is important. We are a team."

OK. I call both of those addresses to the unconscious human resource potentiation—We are making more powerful the God-given, innate congenital abilities and talents that a person possesses and it helps that person work and play more adequetly at the highest level that the creator intended for him to do.

Mr. GLICKMAN. Do you find anything offensive about—even though these are God-given or natural kind of messages, do you

find anything offensive about playing those to an audience that is not explicitly aware of those things happening?

Dr. BECKER. I have not found anything—remember, I am not doing this anymore—but I have never found any of that offensive. Otherwise, I certainly would not have gotten into it. I admit that it is not an on/off digital A or B issue, one or zero.

It is a big—there is no quick fix to this in my opinion. And that is why I suggest in the letter—suggested in the letter to Senator Tsongas that it was my recommendation that Congress appoint a blue ribbon kind of committee or commission to look into it very carefully, with representatives from maybe 15 or 20 of the specialties ranging all the way from philosophy through technology and engineering to look at the question and see whether or not such an invasion of privacy, and there is no question in my mind but that it is some kind of invasion of privacy, but so is a police siren in the middle of the night that wakes me up.

But we excuse that invasion of privacy, because of the greater good that it does for society. And in the same vein, it is my strong feeling that the FCC and Congress itself might excuse the invasion of privacy of a small voice on a background music system in a retail department store, for example, that says "I am honest, I will not steal."

Because remember that private property owners have the right by law to use reasonable means or even reasonable force in the protection of their property. And my question to the media people, when I am interviewed always it is can you think of any more reasonable force or means than a simple inaudible voice that says "I am honest, I will not steal."

Mr. GLICKMAN. Do you want to show your devices now? Would you like to do that? Because I want to get to Mr. Tyler.

Mr. BECKER. Let me make just one more statement. I have here somewhere, it says:

> It is important however, to realize that even though professionals and amateurs as well have experimented with subliminals over the last 100 years, there has been no proven case of significant harm having come to anyone from the use of subliminals, and even aspirin does not have that good a record.

Mr. GLICKMAN. OK.

Dr. BECKER. That is the forerunner of the Mark III color video processor. That is the Mark II. [Slide 1.]

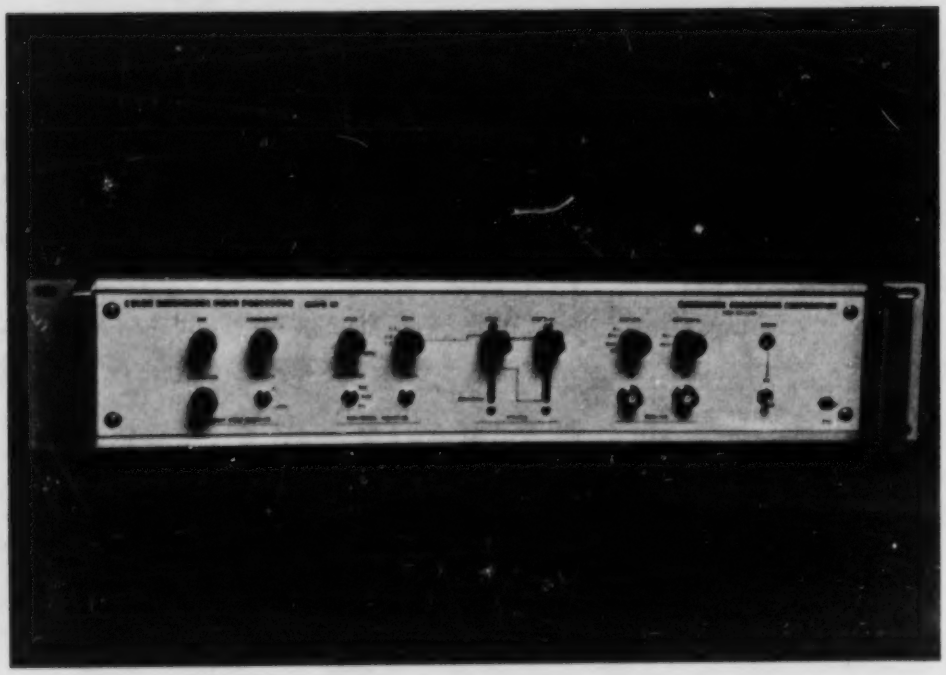
If I could have the next slide, please. That is a schematic block diagram of how these processors fit into a standard television production system.

May I have the next slide?

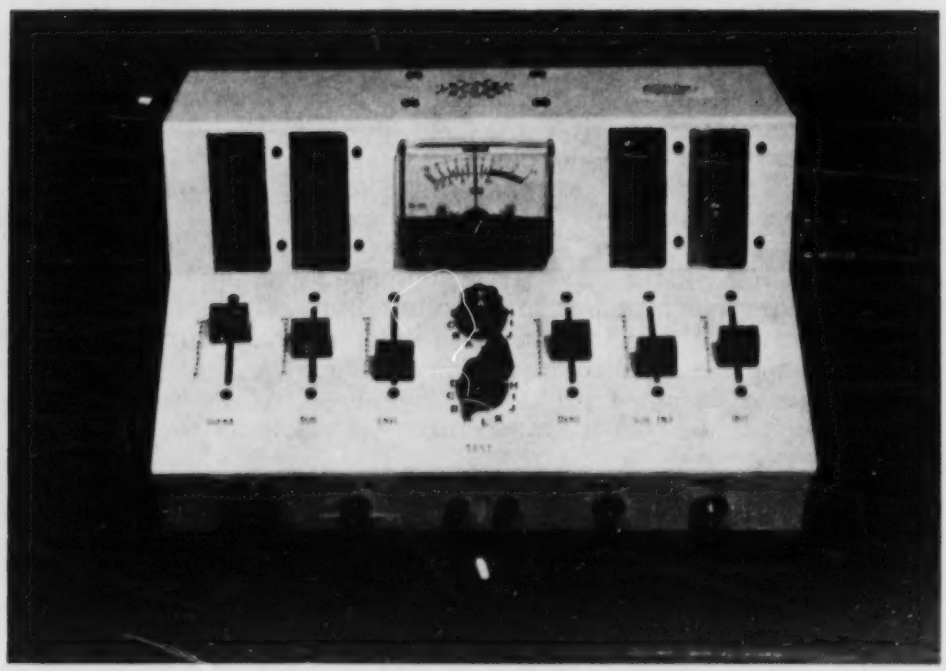
That is the forerunner of the Mark III-B audio processor. That is a laboratory broadcast standard subliminal audio processor. [Slide 2.]

May I have the next one?

And this is the Mark III-B audio processor now available, built to broadcast standards. It is the kind that Dr. McPhilamy is acquiring today, and Dr. Tom Budzynski in Denver, at Behavioral Medicine Associates has used. [Slide 3.]



SLIDE 1



SLIDE 2

SLIDE 3

M. GLICKMAN. How much of these are out in the public domain?

Dr. BECKER. Of these units?

Mr. GLICKMAN. Yes.

Dr. BECKER. About 8 or 10. And all of them were supplied with a signed statement of restrictive use covenants as I described earlier.

May I have the next slide, please?

And this is our little gem that just 3 months ago we completed three preproduction units. Dr. McPhilamy is getting one in the next couple of weeks. Dr. Budzynski already has one, and has prepared his first therapeutic stress management self-esteem video cassette using stereophonic audio subliminals addressing the right hemisphere and the left hemisphere independently through stereophones or speakers and color subliminals.

The tape is designed principally for these highly overpaid and highly overworked corporate executive type A types for relaxation and self esteem.

I guess I could conclude my summary of the material that I sent you at this point if that is OK.

[The prepared statement of Dr. Becker follows:]

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SUBLIMINAL COMMUNICATION: ADVANCES IN AUDIOVISUAL ENGINEERING APPLICATIONS FOR BEHAVIOR THERAPY AND EDUCATION

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Abstract

Subliminal Communication involves the presentation of useful information in one or more sense modalities at intensity levels below those of verbally reportable awareness. Its practical use in behavior therapy (weight control) is described, and instrumentation for properly imbedding subliminal stimuli in video- and audiotapes is disclosed. It is suggested that recently introduced advances in economy of color videotape technology for the individual consumer brings into focus the possibility of introducing behavioral techniques on a grand scale to generate a "...program large enough to affect the health of the Nation," in which there are 60 to 80 million overweight people.

INTRODUCTION

At Southeastcon 1977 in Williamsburg, Va., one of the authors presented a paper "Weight Control Through Behavior Modification: Applied Communications Technology" [1] which described the use of audio and video *subliminal perception* in an instructional color videotape library employed in a *group counseling* program for *weight control through behavior modification* [2]. The following excerpts are paraphrased from the 1977 Southeastcon paper to serve as background for the reader.

Overview

Current communications technology including videotape feedback of one's own image and an instructional color videotape library using *subliminal perception* [3] are employed in a group counseling program of weight control through behavior modification. Participants re-structure eating habits through television conditioning to achieve weight loss and maintenance. Supraliminal signals provide substantive information while subliminal signals are designed to provide affect. As high-protein, nutritious foods are displayed supraliminally, reinforcers such as attractive people appear subliminally. When inappropriate "junk foods" and other high carbohydrate caloric foods are supraliminal, mildly aversive (yet friendly) childish demons and creatures are presented subliminally. This is called *discrimination training*. Participants report that the subliminal messages do engender *stop, think,* and *discriminate* behavior, causing them to face a decision instead of eating automatically out of habit.

Credibility of Television

Data in the literature reveal that information gleaned via the medium of television is interpreted by viewers as significantly more credible than information received through any other medium including in-person communication [4]. Experience with videotaped continuing education programs [5] and with the present weight control program confirms this.

Behavior Modification Programs 1 and 2

In Program 1 participants meet for 12 or more weeks in one and one-half hour sessions of 8 to 10 people. Their weight loss averages 1.5 pounds per week. Participants are heterogeneously grouped, with the exception of special teenage classes. Through the application of well-known behavior modification techniques including shaping, fading, and differential reinforcement of other behavior, participants learn to change their old eating, drinking, exercising, and relaxation habits to more adaptive ones in step-by-step successive approximations. This is achieved through group counseling and display of color videotapes. The tapes contain substantive and instructional information on metabolism, nutrition, relaxation, and mild exercise -- reinforced with *subliminal stimuli* (subliminal communication) to strengthen the impact of the videotaped conscious level (supraliminal) messages. This videotape library has been made available to Medical Doctors and other qualified Allied Health Professionals.

Program 2 is an Accelerated Weight Loss Diet Option that combines Program 1 (for behavior modification, nutritional information, assertiveness and relaxation training) with a carefully structured,

high-protein, low-carbohydrate, low-fat diet that provides all essential nutrients including minerals. It is designed for persons who are more than 40-50 pounds overweight, and who need a stronger Reinforcement/Reward schedule. Average weight loss is approximately 5 pounds per week. Clinical Lab. monitoring is required.

Brief History of Subliminal Communication

Earlier use of subliminal communication has been controversial because it influences a person's behavior without his conscious awareness. In the last 50 years several hundred papers have dealt with subliminal stimuli and devices in various fields. In 1964-65 Becker *et al* [3,6] reported definitive results from experiments in which geometric symbols and trade names were displayed subliminally [7,8], concurrently with a supraliminal color, sound motion picture cartoon.

Some controversy remains regarding the use of subliminal stimuli, and questions have been raised concerning its ethics and its efficacy [9]. However, the use of subliminal communication in the way it is employed in this weight control program appears justified even though efficacy of subliminal communication has not yet specifically been evaluated statistically in the field of weight control. Since the authors do not know of any adverse results from the many uses of subliminal stimuli, and since subliminal communication appears an ideal technique for their behavior modification programs, they have adopted it, and have employed it successfully over the past three years.

SUBLIMINAL COMMUNICATION
AND TWILIGHT LEARNING

There are several interesting similarities between the use of *subliminal communication* in this program and the *twilight learning* described by Budzynski [10]. The videotapes of this program that employ subliminal stimuli also employ relaxing, lilting background music to lull the viewer into a relaxed, almost trance-like state. It now appears that such an altered state of consciousness is precisely what Budzynski and others have found conducive to "...a loosening of the reality-oriented frame of reference and a suspension of the critical cognitive faculties. Moreover, evidence from several areas of research, including sleep, sleeplearning, arousal level, sensory deprivation, hypnosis, attitude change, altered states, and psychotherapy supports the concept of twilight-state hypersuggestibility." For example, Barber [11] was able to show that subjects were just as suggestible when in a light sleep or in a drowsy condition as when hypnotized.

THE DIET DILEMMA

In this section the authors wish to provide a practical account of certain real and common problems that must be faced, and solved, by any person who intends to lose weight *and keep it off*. The remaining sections contain strategies and tactics, some tested and some suggested, that should facilitate the solutions.

Most diets depend upon the ability of the dieter to count the calories in his intake up to a prescribed limit. In order to do this, he must either remember how many calories are in what amount of which food, or he must engage in a table look-up operation.

Other special diets (*e.g.*, Weight Watchers) delineate specifically what foods and how much (by weight) the person should eat.

These activities generally lead to weight loss; however, the dieter learns virtually nothing about the nutrients contained in his many different foods. Even more importantly, modification of his basic eating habits is not attained. Therefore, when he goes off the diet, his weight usually reappears with astonishing rapidity.

Thus is generated the *Diet Dilemma*, which is described by one participant as follows:

"The name of the game is to lose weight and fast. Neither your health nor what happens at the end of the diet comes into mind. You're usually depressed by your body and feel rejected by loved ones. Then you start your diet. After a few weeks you lose 10 to 20 pounds, but you begin to feel frustrated. And then second-phase dieting sets in -- boredom with what you're eating -- and then a little cheating never hurts? You have 100 calories left. So why not have something really tasty instead of cottage cheese? The *caloric content* is the *same* so there's no difference. Mmm, the cocoanut fudge is so much more delicious, too. Besides, you have received compliments, -- clothes fit again! Then suddenly you discover that one piece of fudge isn't enough. By the end of the week the 10 pounds are back on, and you're rapidly on your way to gaining even more weight."

What this patient never did learn was that even though the caloric content was almost the same, the nutrient content was very different, - in this case disastrously different! A one-inch square of Cocoanut Fudge has 120 Calories, only 2 grams of Protein, 3 grams

of Fat, and 22 grams of Carbohydrate. In contrast, the 120 Calories of Cottage Cheese (skim milk derived) contains 25 grams of Protein, negligible Fat, and only 7 grams of Carbohydrate. Obviously, the *better* selection would have been the Cottage Cheese (perhaps artificially sweetened and flavored to satisfy his craving for sweets) for several *very* important reasons:

1) The high Carbohydrate content of Cocoanut Fudge, although momentarily deliciously rewarding, produces an immediate increase in blood sugar (glucose), which, in turn, causes insulin production from the pancreas to increase. The higher insulin level leads to rapid utilization and consequent lowering of the blood sugar level. This is the initial phase of the characteristic blood sugar spiking phenomenon that aggravates emotional "ups and downs," and leads then to a "binge." Compare the foregoing with what happens when 120 calories worth of Cottage Cheese is ingested -- containing its 25 grams of Protein and only 7 grams of Carbohydrate. The Carbohydrate again produces a rapid increase in blood sugar level. However, the large amount of Protein concurrently causes a *slower but sustained rise in blood sugar* for one to three hours [12].

2) Selecting the Cocoanut Fudge instead of the Cottage Cheese tripped a second dieter's trap. Assuming that the intended diet was a well-balanced one, the deletion of 25 grams of Cottage Cheese Protein from the intake significantly reduced the necessary Protein allottment for that meal. When Protein deficiency occurs, metabolically needed Protein is literally "stolen" from one's lean tissue and vital organs (*e.g.*, lung, liver, and heart). Then, upon termination of the diet, when "normal" eating is restored, this Protein debt is rapidly repaid in a way that seems quite unfair of Nature -- *each one pound of Protein restored to lean tissue and vital organs brings with it approximately three pounds of intracellular water* [13]. This usually leads to depression, and a belief that "I can never be thin anyway -- I'm different from slim people -- so the Hell with it!" This is the beginning of the classical "Yo-Yo" Syndrome.

3) In this irresponsible, rebellious frame of mind the dieter usually responds to his cravings (which are becoming inordinate by this time) in the same old habitual way -- he gives in and overdoses on high-carbohydrate foods. Clearly the reason is that the diet *did not change* his *basic eating habits*. No diet, *per se*, can change one's eating habits -- except maladaptively as described below in the "Yo-Yo" Syndrome. Therefore he gains back the weight he lost on the diet, and then sooner or later, begins yet *another* diet to lose approximately the same number of pounds once again. This is called the "Yo-Yo" Syndrome. It would have been better not to have lost the weight instead of establishing this bad habit. Yo-Yo'ing causes cumulative, tough, tenacious, fatty deposits called "plaque" to attach themselves to the inner walls of the arteries -- somewhat analagous to scale in boiler tubes. Although there are some preliminary indications from recent research that these blood-flow constricting deposits are partially reversible, there is no proven way presently available to remove the plaque layers. The plaque is deposited when gaining weight, but *it is not removed by losing weight*. Here is another seemingly unfair way in which Nature treats those whose eating habits are maladaptive -- *but that is the way it is...*

o o o

These three reasons for the prudent selection of Cottage Cheese over Cocoanut Fudge highlight the importance of providing the overweight person with a rational system for storing immediately retrievable visual images of the four most significant indices of foods: Protein, Carbohydrate, Fat, and Calories.

AN ANSWER TO THE DIET DILEMMA:

Food Signatures©

The frustrated, quizzical looking fellow in Fig. 1.a. is experiencing the "Diet Dilemma" that our hypothetical dieter above failed to solve. Food Signatures© graphically and poignantly prove that all calories are *not* the same -- that when in doubt, Protein calories are (usually) a *better* choice than Carbohydrate or Fat calories. A Food Signature *identifies* a food, and thus may be called a *Food Print*.© When combined with appropriate *subliminal stimuli*, the Food Signatures become powerful "early warning" aids for resolution of the Diet Dilemma. They appeal to the patient's visual imagery by means of a unique graphical representation of the nutrients in each given food. The caloric content of each food is broken down into its three major components: 1) grams of Protein, 2) grams of Carbohydrate, and 3) grams of Fat, as illustrated in Fig. 1.b. The Food Signatures also

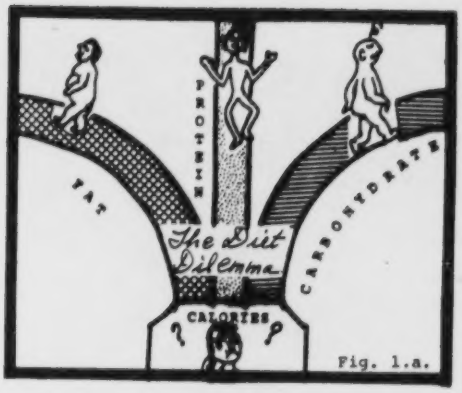

Fig. 1.a.

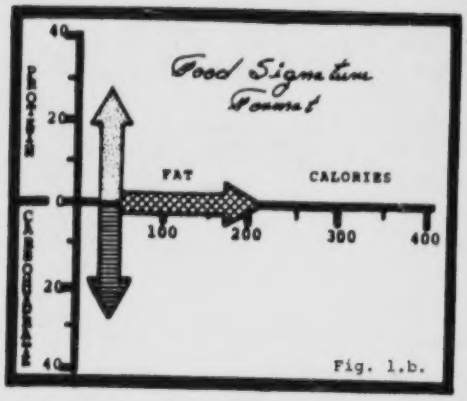

Fig. 1.b.

CONDITIONING SUBLIMINAL STIMULI AND THEIR CORRESPONDING Food Signatures©

Fig. 2.a.

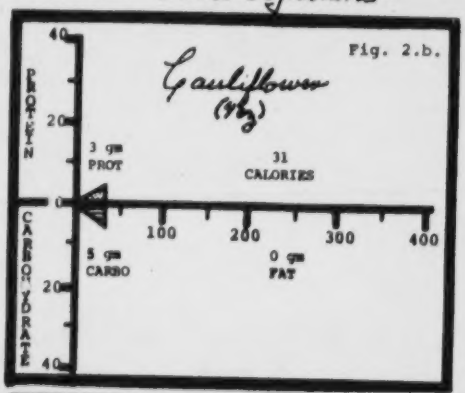

Fig. 2.b.

Fig. 3.a.

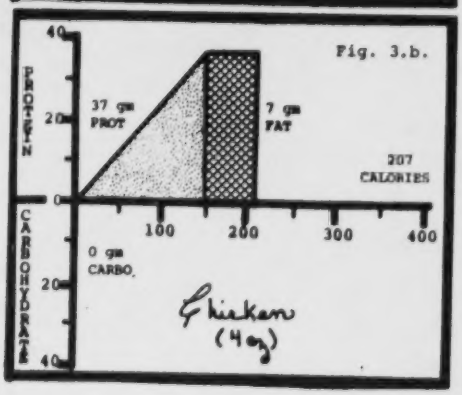

Fig. 3.b.

Fig. 4.a.

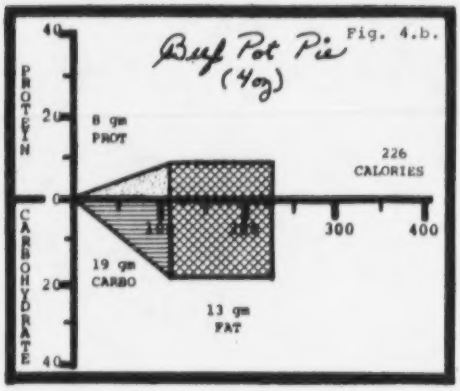

Fig. 4.b.

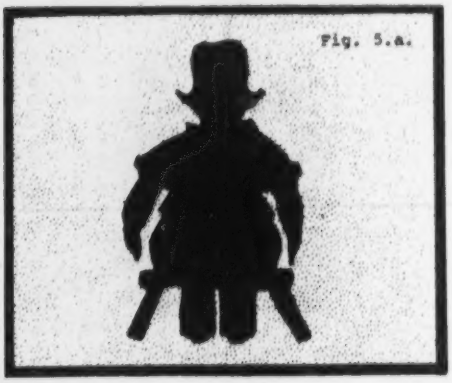

Fig. 5.a.

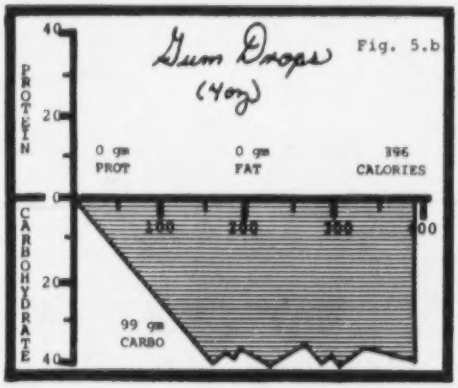

Fig. 5.b

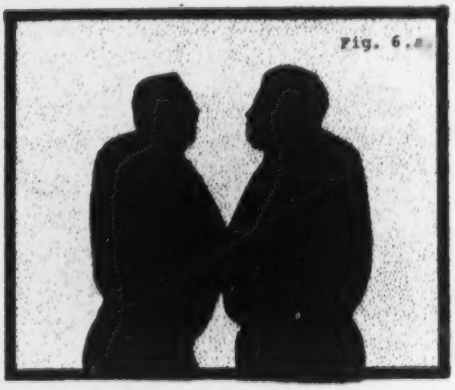

Fig. 6.a.

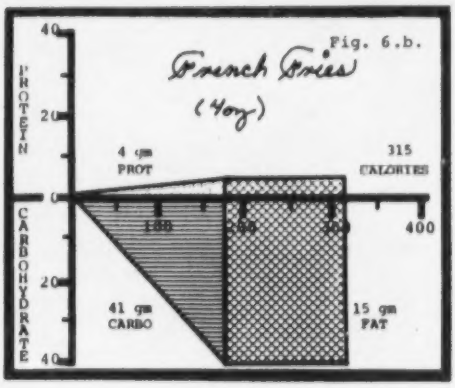

Fig. 6.b.

display the total number of Calories in a four-ounce (Avoirdupois) portion. These graphs are designed to help one easily visualize the true worth of a given food. For example, a high-Protein, nutritious food would have a large stippled triangle extending upward from the horizontal axis. The stippling gives a Cream Cheese effect, light and appealing to the eye and palate -- nicely demonstrated by the Food Signature of Chicken in Fig. 3.b.

If a cross-hatched rectangular area is predominant in any Food Signature, that food contains a large proportion of Fat. The X's that make up the cross hatched Fat area are intended to suggest negation, as can be seen in the Food Signatures for Beef Pot Pie, Fig. 4.b.; Gum Drops, Fig. 5.b.; and French Fries, Fig. 6.b.

In a high-carbohydrate Food Signature the predominant area is the triangle below the horizontal axis containing horizontal bar hatching. These bars are intended to suggest that one's "width" will increase if high-carbohydrate foods such as Gum Drops, Fig. 5.b., are consumed indiscriminately.

The nutrients of some foods are such that a person may have as large a quantity as desired. Typical of these foods is Cauliflower, whose Food Signature is shown in Fig. 2.b. Notice that it appears strikingly different from those of all the other Food Signatures, demanding only a very small area of the Food Signature plane.

On videotape the Food Signatures are presented at the *supraliminal* level, while an appropriate silhouette is presented at the *subliminal* level -- either for positive conditioning (reinforcing stimuli) as in Figs. 2.a. & 3.a., or for negative conditioning (mildly adversive stimuli) as in Fig. 4.a., 5.a., & 6.a.

The Food Signatures in this paper are constrained to black and white display. However, on color videotape, they are displayed in three hues: Blue for Protein, Red for Carbohydrate, and Yellow for Fat. Even children easily comprehend and retain the Food Signature Messages -- *Blue* for Blue Sky (have as much Protein as you wish), *Red* for Danger (watch the Carbohydrates), and *Yellow* for Caution (warning to minimize Fat).

VIDEO AND AUDIO SUBLIMINAL INSERTION AND PROCESSING EQUIPMENT

This section briefly describes the equipment used to insert *subliminal stimuli* into video and audio programs either in a live real-time environment or on magnetic tape.

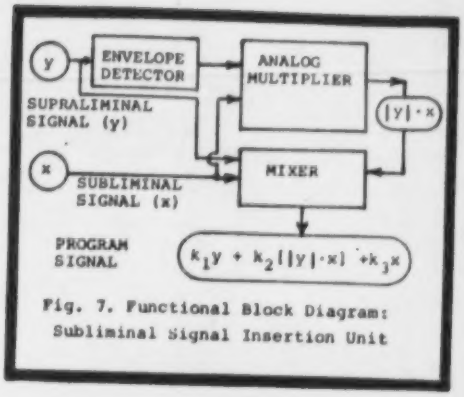

Fig. 7. Functional Block Diagram: Subliminal Signal Insertion Unit

Fig. 8. Prototype Audio Subliminal Signal Processor and Insertion Unit

Both video and audio subliminal insertion equipment conform to the generalized functional block diagram of Fig. 7.

The supraliminal signal amplitude envelope is monitored, and the rectified envelope signal is used to control the amplitude of the subliminal signal that is admixed with the standard supraliminal signal. This allows the subliminal information to be held dynamically near -- but not exceeding -- the conscious threshold detection level regardless of wide excursions in amplitude of the supraliminal information.

In television use, a vertical interval switcher is frequently employed between

the Insertion/Processing Unit and the Program Line to allow subliminal image insertion on alternate fields. This mode yields a subliminal image insertion repetition rate of 30 per second, *i.e.*, Frame Frequency.

In addition to the applications already described, it is relevant to identify another area in which the use of specially designed audio subliminal insertion/processing equipment appears to possess powerful promise. It is possible to deliver repetitive endless loop subliminal audio messages via an in-house multiple-speaker background music system. Potential applications are many, and varied. A prototype of this equipment is shown in Fig. 8. It consists of an audio Subliminal Insertion/Processing Unit and an endless-loop audiocassette playback machine housed in a sturdy Fiberglass cabinet equipped with a security locking feature. Security provisions were included in the design to assure determent of unauthorized intervention into the established subliminal programming format.

DISCUSSION

The library of six color videotapes and a specially produced audiotape (*"GET ON THE LIGHTER SIDE"* ©) employing *subliminal communication* are now used in weight control programs by several professionals (Physicians and Psychologists) in Australia, Canada, and the U.S.A. Although it is too early to derive a statistical level of confidence from these clinical trials, preliminary results with patients who have "tried everything else many times" encourage design of an audiovisual "mass media" approach to obesity. The authors believe that a carefully designed, behaviorally programmed assault on obesity could remove exogenous obesity from its present rank on the list of prime health problems [14] in the U.S.A.: by *prevention* for children and *therapy* for adults.

The recent introduction of low-cost consumer oriented videotape equipment coupled with a heightened national interest in controllable health risk factors could make weight control therapy affordable for the 60 to 80 million people in the U.S.A. who are significantly overweight.

In 1974 Becker [15] demonstrated that weight control behavior modification therapy could be delivered to groups via color videotape with effectiveness equal to that of a live *in person* therapist. Perhaps mass-produced self-help color videotape libraries incorporating these new methods for weight control could reach a large enough segment of the population to control exogenous obesity in one generation. This could fulfill Stunkard's [16] idea that behavioral techniques might be introduced on a scale grand enough to generate a "...program large enough to affect the health of the Nation."

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25 – 3 SUBLIMINAL COMMUNICATION: BIOLOGICAL ENGINEERING CONSIDERATIONS (1)

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Subliminal communication is controversial because it influences a person's behavior without his conscious awareness. It induces serious ethical and emotional considerations. Bevan (1964) surveyed over a hundred related papers and states, "....that the topic has come of age is indicated by several facts. Experiments are no longer directed simply toward establishing subliminal perception as an empirical phenomenon but incline more toward examining its influence upon a variety of behavoral events...."(2)

We have two purposes - 1.)to describe a series of studies, begun in 1950, designed to assess the efficacy of subliminal stimulation as a communication medium and 2.) to discuss some of the unique engineering problems which appear to have been ignored heretofore. Since one of us (3) has dealt with some of the problems of theoretical intervening processes, we present certain results, then restrict ourselves to an analysis at the stimulus-response level requiring no assumptions about mental events.

Using a tachistoscope with experimental and control groups of subjects in laboratory environment, it was demonstrated (Fig. 1) that subjects who were presented anagram solutions at the non-verbally-reportable visual level (subliminal) solved the anagrams in 15% to 46% less time than subjects who had been presented a series of X's subliminally ($P<0.005$).

We then investigated subliminal communication with groups of subjects in a non-laboratory environment by concurrently presenting entertaining visual and auditory information supraliminally in the form of a motion picture (movie) cartoon in color with sound. Initial experiments led to control of: 1.)luminance of the subliminal information in accordance with the changing, instantaneous luminance of the supraliminal information, 2.)average luminance of both sub- and supraliminal information, 3.)temporal duration of sub- and supraliminal light pulses, 4.)temporal phasing between the light pulses, 5.)repetition rates, temporal patterns of appearance, and Alpha modulation of the subliminal information. These are some of the parameters of the total visual stimulus.

Fig. 2 is a dual projector method (4) for presenting subliminal information concurrently with a supraliminal color, sound movie. Two movie projectors mechanically synchronized and oriented to have optical axes intersect at the center of the projection screen presented duplicate films. Proj. 2, supraliminal, operates in standard way. Proj. 1, subliminal, is modified to receive a "stationary frame" very near object plane of its optical system. The on-screen image from Proj. 1 is the luminance information matrix whose elements are proportional to the product of the in-line elements of the transmission matrix of the stationary frame and the transmission matrix of the particular frame of the motion picture film in the gate. The stationary frame contains information to communicate at subliminal level, while the movie film in Proj. 2 provides entertaining supraliminal information.

Fig. 3 is a sample stationary frame containing subliminal information - one of three petroleum names and symbols (SHELL, ESSO, GULF). Other symbols were geometric figures - triangle, circle, square.

Volunteer subjects, approximately 18 per group, were university students and acquaintances. Subjects were seated symmetrically before a projection screen, while projectors and tape recorder (which gave instructions) were behind a curtain.

Our results are drawn from a total of 17 such independent groups. Eleven received one of the three symbols - triangle, circle, or square - subliminally, while the remaining six groups received one of three petroleum names - ESSO, SHELL, or GULF - subliminally. Each group received supraliminally a seven minute motion picture cartoon - Woody Woodpecker in "Well Oiled" or Mickey Mouse in "Clock Cleaners".

Order of experimental tests for each group was essentially the same. Subliminal stimulus was different for different groups. Subjects were ushered into the viewing area as a group, seated, told they would participate in a market research experiment, and asked "...to sit back, relax, and watch the movie." Conversation was not permitted until each group experiment was completed. By questionaire following the movie, all subjects were asked their attitude toward the film, i.e., whether they Liked, were Neutral toward, or Disliked the movie, also whether anything unusual had appeared, in order to determine which subjects might have seen the "subliminal" information. Questionaires were collected, and subjects were told a series of symbols would be presented for a short period. The series of symbols appropriate for the particular group (three petroleum names or three geometric symbols) were presented for 45 seconds with a rotating display, and subjects were asked to select "...that symbol which appeals to you the most, the one for which you have the most positive feeling...."

The 17 experimental groups comprised 314 people. On these data we have carried out many statistical analyses which indicate a high degree of significance for subliminal communication with those persons who said they liked the movie. For one analysis we deleted 83 people (occupying seats 1, 2, 5, 6, 7, and 12) who were found by illuminometer measurements to have received less than 50% of the maximum illumination from the screen received by those on the axis of symmetry. Three percent of the remaining 231 people reported seeing the subliminal information. These 7 subjects were also deleted for the following analysis.

Correct response is defined as a person's selection of the symbol that was subliminally presented to his group. With data from 17 groups, a percentage correct response score was derived for each of the three movie attitude

categories (Like, Neutral, Dislike) for each of the six different sets of groups that received the six different symbols subliminally (triangle, circle, square, SHELL, ESSO, and GULF). Results of an analysis of variance comparing the mean percentage correct response found in the L, N, and D attitude categories are shown in histogram, Fig. 4. Analysis of variance yielded an F=13.9, df=2/15 (P<0.005), indicating differences between the means were highly significant. Note that the mean percentage correct response in the Like category is more than double the responses in the Neutral and Dislike categories.

We have photographically inserted subliminal information into two feature-length movies in an attempt to enhance entertainment value of films, in cooperation with a motion picture production organization. The degree of success in this attempt has not yet been assessed reliably.

We also have specially designed equipment which should be capable of inserting effective subliminal stimuli into standard television systems, radiated or closed-circuit (4). We have not yet tested efficacy of this equipment with television audiences.

In most of our experiments and in our equipment we have incorporated a way to modulate intensity of the subliminal information in accordance with intensity of the concurrent supraliminal information. Theoretical consideration and practical experience demonstrate that optimal control of the ratio of subliminal to supraliminal intensities, at every area element of the viewing screen, is almost impossible to achieve in practice. One can postulate, however, various analog and/or digital computing configurations which would dynamically optimalize this ratio during presentation. This appears to be one feasible approach.

Further debate will occur on the question of ethics raised by development of subliminal communication theory and techniques. However, the impact, we venture to predict, will not be felt in moot areas such as commercial advertising and political influence, but rather in fields more fundamentally acceptable such as education, personnel selection, mental health, and psychological diagnostics.

We stress that while our data, considered along with those previously reported by others, seem to portend future use of subliminal communication, definitive analysis of significant factors which contribute to these phenomena await the coalition of many more data. For example, our data not reported here because of space consideration suggest a reciprocal functional relationship as a result of the subject's response to the subliminal stimuli in the form of an effect upon the subject's attitude toward the supraliminal information concurrently presented.

Future experiments will be directed toward problems such as - 1.)what physiological mechanisms are involved when organisms yield motor or verbal responses to stimuli they reported earlier they could not see and 2.)to what extent might habit response be sustained by subliminal cues. The fact that behavior can be modified in this way warrants carefully planned experimental analyses of the significant variables.

Finally, a comforting note is sounded in the Summary of Bevan's paper when he states that one of the roles of subliminal variables "...is similar to that of supraliminal variables and the behavior, far from being irrational, is not only rational but appropriate to the circumstances as the behaving individual perceives them."(2)

ACKNOWLEDGEMENTS

The authors thank the following organizations and their personnel for support and technical contributions: Tulane University of Louisiana, Loyola University of the South, Louisiana State University in New Orleans, the Commonwealth Fund, the National Institutes of Health, Kalvar Corp., Medcraft Electronics, Inc., General Precision Laboratories, Inc., Raymond M. Price Associates, Inc., Roy Trahan Photography, Eastern Pennsylvania Psychiatric Institute, and PRECON Process and Equipment Corp. Special thanks are due the many volunteers who patiently participated in our group experiments, and to Dr. S.M. Peacock, Jr., Prof. D. Alvarado, and Mr. E. Miscenich.

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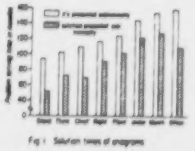

Fig 1 Solution types of analysis

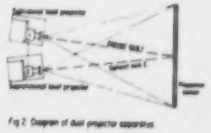

Fig 2 Diagram of dual projector apparatus

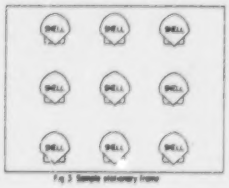

Fig 3 Sample stationary frame

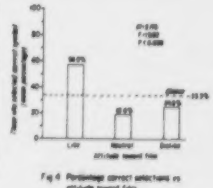

Fig 4 Percentage correct selections in attitude toward film

SUBLIMINAL COMMUNICATION AND HYPNOSIS*

A Poster Session Presentation to the American Society of Clinical Hypnosis
25th Annual Scientific Meeting, October 24-30, 1982, Denver, CO

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INTRODUCTION

Search of the literature has revealed no study describing the use of hypnosis and subliminal perception as a combined technique. While the literature on hypnosis is vast and that on subliminal perception is growing annually, the absence of studies using both techniques together is notable. This paper provides a brief overview of research, development, and field applications of subliminal communication over the last half century together with preliminary results from the combined use of hypnosis and subliminals.

Both subliminal perception and hypnosis address non-conscious portions of the mind. Work by Corrigan (1954), Becker *et al* (1965, 1966, 1977, 1978, 1979, 1980), Dixon (1971), Erdelyi (1977), and Silverman (1976) have presented evidence to indicate that non-conscious perception of stimuli can result in behavior change. In extensive research, Silverman (1976) has demonstrated that verbal stimuli associated with conflictual wishes or symbiotic fantasies have brought about behavior change. Silverman (1980), in a comprehensive report of studies using a method he calls "subliminal psychodynamic activation" designed to study the impact of Freudian motives in the laboratory, listed three types of studies: (1) laboratory studies in pathological populations (schizophrenics, depressives, etc.) in which the experimental stimuli were intended to either intensify or reduce particular kinds of unconscious conflicts, thereby exacerbating or diminishing the degree of psychopathology manifasted in a single laboratory session; (2) laboratory studies on non pathological populations of mostly college students. The stimuli were designed to increase or decrease unconscious conflict; (3) treatment adjunct studies in which subjects divided into experimental and control groups received subliminal stimulation over time to determine if the experimental stimulation brought about more adaptive behavior.

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Fisher (1954, 1956) in his now classic work demonstrated that subliminal stimuli were registered within a subject on the unconscious level. Also in this same year, Corrigan and Becker (1956) provided what appears to be the first sound evidence that new and useful information can be subliminally communicated to the unconscious and then used successfully at a later time at the conscious level in a problem-solving situation -- a significant reduction in the solution time of anagrams ($p<0.005$) after tachistoscopic subliminal presentation of the unscrambled words. Silverman (1976) has described an experimental design which he has employed in more than thirty published studies on *subliminal psychodynamic activation*. Using a tachistoscope, he presented a brief (4-msec) visual stimulus. One such message reportedly had a powerful effect on the subject's behavior and/or pathology: "Mommy and I are one." This message was designed to activate symbiotic fantasies, and was found to alleviate anxiety in schizophrenics (Silverman, 1979; Silverman *et al*, 1969, 1971, 1975; Silverman & Candell, 1970; Leiter, 1972; Kaye, 1975); to assist in the behavioral treatment of smoking (Palmatier & Bomstein, 1980) and obesity (Silverman, Martin, Ungaro, & Mendelsohn, 1978); anxiety and defensiveness reduction in homosexuals (Silverman, Kwawer, Wolitzky, & Coron, 1973); as an adjunct to the behavioral treatment of insect phobias (Silverman, Frank, & Dachinger, 1974); and to improve academic performance (Parker, 1982).

While subliminal psychodynamic activation studies proliferate, other studies of subliminal communication have shown the effectiveness of the subliminal message. Borgeat, Chabot, and Chaloult (1980) found that auditory subliminal perception influenced the level of activation in their subjects. They also reported positive results in clinical work with smokers, alcoholics, and obese patients.

Budzynski (1977) described the twilight state, in which a brainwave pattern of Theta activity is produced, as a kind of pipeline to the unconscious. While the subject is in this state, verbal material presented appears to be learned more rapidly than it would be under non-twilight conditions. Budzynski noted that the twilight state resembled other altered states of consciousness including those seen in hypnosis and meditation techniques. To better understand the similarities, he referred to the relatively new research field of brain lateralization.

Brain lateralization refers to the functional differences between the two hemispheres. For most people the left hemisphere is associated with verbal, analytic, sequential, and logical modes; while the right hemisphere is associated with spatial, synthetic, holistic, and intuitive modes (Cazzaniga, 1970; Levy, 1974). Individual differences in the activation of the hemispheres is referred to as hemisphericity. Bogen (1969) has described split-brain patients and their peculiar characteristics.

Studies have been made in both hypnosis and subliminal communication with hemisphericity as a variable. Sackeim, Packer, & Gur (1977) found that hemisphericity and cognitive set were correlated with subliminal response. Right hemisphericity individuals showed a subliminal effect when their cognitive set was holistic and intuitive; whereas left hemisphericity individuals showed a subliminal effect when encouraged to think in an organized and logical manner. The authors speculated that the discovery of

hemisphericity and cognitive set variables in subliminal perception may have accounted for the discrepancies found in the subliminal literature.

Carter, Elkins, & Kraft (1982), in a review of the literature, have commented that the effectiveness of hypnosis relies heavily upon the subject's ability to cognitively respond in particular ways to stimuli provided by the hypnotherapist. They suggest that one might logically expect a relationship between findings on hemispheric asymmetry and hypnotic phenomena. A careful examination of the hypnotic work of Erickson, as described by Bandler & Grinder (1975), indicated that linguistic and nonverbal patterns of behavior involving both distraction of the dominant hemisphere and utilization of the dominant hemisphere below the level of awareness as well as assessment of the non-dominant hemisphere were important in achieving the therapeutic effect. Watylawick (1978) attributed the effectiveness of Erickson's work to the use of language patterns which engage the right hemisphere, and block the interfering functions of the left hemisphere.

Carter *et al* (1982) have speculated that much of Erickson's unique approach to hypnosis may be attributable to his mastery in engaging the right hemisphere of his subject. Communication that distracts the left hemisphere, and makes use of right hemisphere processing of sensory information, may be involved.

Since brain laterality appears to be a common denominator in both hypnosis and subliminal perception, the combined use of both techniques becomes logically more appealing. While hypnosis as a therapeutic intervention can contribute much to help a person achieve a more satisfactory adjustment, the resistances often encountered when attempting to use hypnosis leave room for adjunctive methods which can work synergistically with hypnosis, and serve as a facilitator. One such method is subliminal communication.

INSTRUMENTATION FOR SUBLIMINAL COMMUNICATION

Several subliminal processors are now being produced by one of the authors (HCB) in two general classes, *audio* and *video*. In the *audio* class are:

a) the MARK II, a flexible research and/or production instrument designed for the experimental laboratory, commercial/industrial audiotape master production, and radio broadcast use -- requiring both supraliminal and subliminal external audio sources;

b) the MARK III, a simplified, economical field oriented device (which a media person has dubbed the "little black box") designed for use in department stores, supermarkets, drug stores, real estate agencies, professional placement agencies, automobile dealerships, computerized apartment rental agencies, and medical and dental clinics -- requiring both supraliminal and subliminal external audio sources;

c) the MARK III-B Programmable Analog Audio Subliminal Processor [1], an upgraded MARK III containing three calibrated DIAL-POTENTIOMETERS allowing precise adjustment of supraliminal gain, subliminal to supraliminal ratio, and composite signal output amplitude, specifically designed for professional therapists to prepare composite audiocassettes using background music or pink sound [2] for the supraliminal signal with individualized appropriate words and phrases for the embedded subliminal signal -- words and phrases (referred to as "Veridicals" and "Affirmations" [3]) that are derived from an endless-loop audiocassette that can be produced in any well-equipped audio laboratory;

d) the MARK VI, essentially a MARK III Processor with a self-contained digital speech synthesis module to provide several selectable pre-programmed sub-sets of subliminal words and phrases (affirmations) for eight different applications: Professional Placement Offices; Medical and Dental Offices and Clinics; Banks, Supermarkets, and Retail Stores; Real Estate Offices; Automobile Dealerships; Apartment Rental Agencies and Travel Agencies; General Offices; and Smoking Determent, Special Application; and

e) the MARK IX System, a Background Music and/or Pink Sound Source containing an 18-hour endless-loop music and/or pink sound tape with its own laboratory embedded subliminals, designed for connection to an existing power amplifier and loudspeaker system.

In the *video* class at this time is one model, the MARK II, which contains color video signal conditioning, modulation, switching, color keying, and program subliminal insertion solid-state circuitry employing several wide-band analog multipliers -- which requires external supraliminal and subliminal video sources. The MARK II Video Subliminal Processor contains a built-in 3" oscilloscope module which provides comprehensive switch selectable monitoring of all critical signals and functions dynamically on-line.

The basic means and method by which all of these subliminal processors operate are contained in a United States Patent by Becker [1]. Both the audio and video processors are solid state (except for the cathode-ray tube), and functionally they work as follows: The processor monitors and rectifies the amplitude envelope of the supraliminal signal, either background audio music or conventional conscious-level video. Through an electronic analog multiplier this rectified envelope signal is used to control the amplitude of the subliminal signal that is admixed with the standard supraliminal signal, while a second analog multiplier reduces the supraliminal signal amplitude by just the value of the admixed subliminal signal to prevent overmodulation. This allows the subliminal information to be held dynamically near -- but not to exceed -- conscious threshold detection level, regardless of full excursions in amplitude of the supraliminal information.

In the *audio* class the subliminal signal consists of carefully chosen words and phrases delivered at normal speech rate and multiples of normal speech rate with pitch restoration, while in the *video* class the subliminal signal may be words, phrases, silhouettes, half-tone monochrome or color pictures, and combinations of these.

The subliminal signal information is chosen and designed to: 1) link up with and activate pre-existing unconscious wishes, drives and value systems, and 2) impart to the unconscious new and useful substantive, therapeutic and educational information.

HYPNOSIS AND SUBLIMINAL COMMUNICATION IN A DESENSITIZATION EXPERIMENT

One of the authors (DRM) has recently used hypnosis and subliminal communication within a behavior therapy context to treat the fear of thunderstorms in a 58-year-old married female suffering from agoraphobia. Since the fear of thunderstorms was severely incapacitating, and the season for such storms was imminent, it was decided that a multifaceted approach employing hypnotic, subliminal, and behavioral methods might provide rapid desensitization. Baseline behavior indicated tachycardia, shortness of breath, feelings of terror, and a need to run and hide in a sheltered place within the house (*e.g.*, basement room without windows) whenever there was even a warning of a thunderstorm.

A tape recording of a thunderstorm was made, and subliminal messages to relax and be calm were embedded, using the Behavioral Engineering Corporation MARK III-B Audio Subliminal Processor [1]. The subject was then placed in a hypnotic experience and the tape was played through stereophonic earphones. Hypnotic suggestions to remain calm and relaxed were made throughout. Although the subject experienced one intense rush of anxiety upon first hearing the thunder, she quickly quieted and became pleasantly relaxed. The duration of the tape was 30 minutes. At the completion of the tape she was awakened from the hypnosis, and asked to describe her experience. Her first comment concerned the intense fear she had when first hearing the clap of thunder. However, she marvelled at how quickly she had quieted and "accepted" the thunder without further discomfort. She was instructed to listen to the tape daily at home. A nearly one-year follow up revealed that, based on that one session, the patient was symptom free, and no longer was terrified of storms of any kind. Her husband reported amazement that she was able to travel in a car during near blizzard conditions without anxiety. While her agoraphobic symptoms (which were not addressed hypnotically or subliminally) continue to some extent, the thunderstorm phobia as well as fear of all storms were completely eliminated.

SUBLIMINAL COMMUNICATION IN THREE PINK SOUND EXPERIMENTS

The initial design of these experiments included placing the subject in a hypnotic state after the subject listened to a pink sound audiocassette containing an embedded subliminal three-digit number, and then with the subject under hypnosis requesting the subject to make one selection from five possible selections 1) through 4) -- four different three-digit numbers, and 5) -- no number at all, if he felt no number had been presented with the pink sound. Thus chance operating alone would have predicted a 20%

Correct response rate. One of the hypotheses was that the subliminally embedded number would be more often correctly selected by the subjects while under hypnosis than while in their normal, unaltered state of consciousness. However, to the surprise of the first experimenter (JWH, in Burlington, VT), the correct number selection rate obtained while the subjects were in the normal state was so nearly perfect ($p<10^{-8}$) that it seemed trivial to proceed with the initial experimental design.

Two additional similar pink sound experiments were later carried out in other cities by another of the authors (SBC, in Salt Lake, UT) and by another colleague, Prof. Thomas P. Martini (TPM, in Spokane, WA), using identical pink sound audiocassettes containing the same three-digit subliminal number. These three pink sound cassettes were prepared in the laboratory of another author (HCB) using his MARK III-B Audio Subliminal Processor [1] and a Soundolier MG-1500 Pink Noise Generator [4]. Data from these experiments by JWH, SBC, and TPM are presented in the Tables below. Chi Square analysis was chosen because it is a non-parametric test and therefore its validity does not depend upon normality of the data. It was compensated for small-sample Expected Frequencies by means of the Yates Correction [5], which, in fact, tends to overcorrect and therefore bias the result against the investigator.

TABLE I (JWH)

N = 8		N = 19	
CONTROL GROUP		EXPERIMENTAL GROUP	
Correct	Incorrect	Correct	Incorrect
1	7	17	2
df = 1, $X^2 = 0.167$		df = 1, $X^2 = 38.8$	
$p = 0.68$ (non significant)		$p < 10^{-8}$ (highly significant)	

TABLE II (SBC)

N = 20		N = 20	
CONTROL GROUP		EXPERIMENTAL GROUP	
Correct	Incorrect	Correct	Incorrect
1	19	17	3
df = 1, $X^2 = 3.27$		df = 1, $X^2 = 35.27$	
$p = 0.071$ (non significant)		$p < 10^{-8}$ (highly significant)	

TABLE III (TPM)

N = 18		N = 21	
CONTROL GROUP		EXPERIMENTAL GROUP	
Correct	Incorrect	Correct	Incorrect
3	15	12	9
df = 1, X^2 = 0.296		df = 1, X^2 = 9.92	
p = 0.586 (non significant)		p < 0.002 (highly significant)	

Discussion of Results from Pink Sound Experiment

The results from these three investigations by JWH, SBC, and TPM using pink sound with an embedded subliminal number again confirmed that new and useful information *can* be imparted to one's unconscious mind, and that this same information can be accessed and cognitively used at the conscious level at a later time -- in other words, clearly demonstrating measurable critical incidents -- at levels of confidence respectively of $p<10^{-8}$, $p<10^{-8}$, and $p<10^{-2}$, based upon a Chi-Square analysis with a Yates Correction for small expected frequencies. It is important to note that JWH and SBC conducted their experiments in their own Clinics with the cooperation of their private patients, while TPM carried out his experiment in a university classroom with another Professor's students.

The authors have designed further experiments that should allow evaluation of their earlier stated hypothesis that subliminally imparted information should be more readily, and more accurately, accessible when the subject is under hypnosis.

SUBLIMINAL COMMUNICATION FOR HUMAN RESOURCE POTENTIATION IN THE FIELD

Subliminal communication appears to offer a broad spectrum of approaches for *human resource potentiation*, which might partially be defined as enhancement and optimization of one's basic adaptive stimulus-response chains in at least three ways: 1) by enlivening and activating healthy wishes and drives already present in one's unconscious, 2) by imparting new and useful information into one's unconscious, and 3) by increasing one's unconscious selective attention while potentiating awareness.

This broad spectrum of approaches contains clusters of finely-tuned, narrow spectral lines of mode and technique selection, since the subliminal stimuli appear to reach directly primitive and unconscious levels of the mind -- suggesting a wide range of therapeutic, educational, and industrial applications -- possibly limited only by the ingenuity of the therapist or

investigator. Both video and audio subliminal communication are efficient, unobtrusive, powerful, and they operate while one is fully aware of and attending to, normal activities at work or in recreation.

When subliminal communication is used in field applications for human resource potentiation, the authors refer to it as *Applied Subliminal Communication*™, in order to distinguish it from *laboratory* experiments in subliminal perception or subliminal communication. As anyone who has taken a laboratory-developed system into a field situation in the real outside world has discovered, an additional entirely different set of criteria need to be satisfied -- *and*, many parameters and variables that were quantifiable and controllable in the laboratory are no longer under experimenter control.

This usually produces field results that are more anecdotal and sometimes less quantifiable than results from laboratory tests. Without apology, but with this *caveat* in mind, the authors invite the reader to review the following results from some of their experiences with Applied Subliminal Communication™ (ASC™).

ASC™ IN A NEW ORLEANS AREA SUPERMARKET

A single-channel subliminal sound conditioning background music system was installed in a New Orleans Area Supermarket by HCB on November 7, 1979, and a letter from the Store's Manager dated June 5, 1980, stated:

"We have: 1) witnessed an almost complete turnaround in cashier shortages, turnovers, and very important -- their attitudes,

2) been able to reduce our stock work force in half, and yet maintain our same level of efficiency,

3) (and most importantly) found our shortages throughout the store at an all-time low.

"[Further] results we discovered:

1) Cashier shortages have dropped from a total of approximately $125.00 per week to less than $10.00 per week. Complaints from customers about cashiers are now nil, and many times we have received compliments.

2) The reduction in damaged merchandise by our stock force has been surprising. Before installation of your equipment, we donated a truckload of damaged merchandise to our local church every three months. We have not collected enough damaged merchandise to fill up one truckload since installation of your subliminal equipment 8 months ago.

3) Pilferage loss was running an average of $50,000.00 per each 6-month period. This has dropped since installation of your equipment to the astounding figure of less than $13,000.00."

ASC™ IN TWO STORES OF A LARGE SUPERMARKET CHAIN

A single-channel subliminal sound conditioning background music system was installed by HCB in each of two stores of a Large Supermarket Chain in July, 1981. A letter from the Personnel Manager stated that over the following eleven months personnel *turnover* was reduced to one half of "...what it ran the two years prior to installation...[while]... overall *turnover* [in the other approximately 60 stores] has remained the same...The overall workers compensation claims in all but the two stores tested were about the same, while claims in the stores tested have been reduced."

ASC™ AT THE MC DONAGH MEDICAL CENTER

At the McDonagh Medical Center [6], where a 3-channel subliminal sound conditioning background music system was installed by HCB, a significant improvement was documented in four target behavioral areas over the period April through October, 1979:

1) "*Steam-ups*" in the Patient Waiting Room were reduced by about 60%. Waiting Room population was running approximately 70 to 90 patients per day.

2) *Fainting* in the Intravenous Chelation Therapy Clinic upon IV needle insertion was reduced essentially to zero. The chelation fluid is highly acidic (Vitamin C), and needle insertion is accompanied by intense "smarting" and frequently by pain.

3) *Smoking* in the Staff Lounge was reduced by 50 to 70%, as determined by counting of daily butt accumulation. The Staff Lounge accommodated about 8 to 10 persons each day, while cigarette butts prior to system installation were about 60 to 70 daily.

4) *Harmony* and *cooperation* among Clinic personnel appeared to improve significantly. No attempt was made to quantify this behavioral area.

ASC™ IN HEALTH PROMOTION SELF-HELP AUDIOCASSETTES

In January, 1982, one of the authors (HCB) released a Health Promotion/Self-Help Audiocassette (one hour) [7] for use by the participants in his weight control program, and for acquisition by the general public, containing on Side 1 a one-half hour narrative over background music embedded with appropriate subliminal *affirmations* and subliminal *veridicals*[3], and on Side 2 one-half hour of the same music and embedded subliminals, recorded at normal listening level for the music, with the subliminals remaining undetectable at the conscious level.

The response to this cassette has been universally good, and unsolicited reports from field users indicate that it is working for them. The cassette program is novel in that it is appropriate not only for those who are overweight, but also for those who are normal weight and having a difficult time remaining that way. The program is *not a diet* in the usual

sense of the term, since it prescribes three balanced meals plus high-Protein and/or low-Carbohydrate/low-Fat snacks between meals, with a *minimum* of 900 total calories each day. It is called the Becker Weight Control Program©. And, in 1979, a four-year computerized random-sample follow up on 151 patients (N=42) conducted as a Master's Degree Nutrition Research Special Project [8] revealed weight loss maintenance statistics that were significantly better than any in the literature, *viz.*:

> "Approximately fifty per cent maintained 50% or more of the weight lost during the Program for a mean period of two years...twenty-three per cent maintaining 75 to 100% of their loss...eleven per cent maintained only 1-25% of weight lost in the Program."

The basic strategy -- proven over the last eight years -- is to shift the spectrum of nutrient intake toward high Biological Value Protein, moderate Carbohydrate, low Fat, and not forbid Alcohol; while at the same time, to provide a programmatic series of small, but permanent, changes in eating and drinking habits, referred to as *behavior moderation*, through subliminal discrimination training at the unconscious level involving review and recall, self-image, assertiveness, relaxation, stress management, and anxiety reduction.

Since the substantive content of this cassette program is multi-focal: nutrition, metabolism, self-image, assertiveness, stress management, anxiety reduction, and mild exercise (when medical conditions permit), it should, when combined with hypnosis, offer a *superior therapeutic weight control program* for patients of a Hypnotherapy Practice. The principal criticism about the use of hypnosis in weight control therapy focusses on the fact that most hypnotists are not trained in nutrition or behavior modification, and therefore tend to cause the patient to *lose* weight, but to lose it in an *unhealthy* and *temporary* way through malnutrition, and absence of permanent behavioral change.

It seems, therefore, that judicious use of this cassette to provide nutritional and behavioral modification guidance, subliminal activation, review and recall -- in *combination with hypnotherapy* -- could result in a therapeutic treatment effect whose whole could be greater than the sum of its parts.

ASC™ IN A CHIROPRACTIC PRACTICE

A Chiropractor colleague, Paul Tuthill, D.C., (in Wyoming, MI) has recently produced several self-help therapeutic subliminal audiocassettes using the MARK III-B Subliminal Processor, that he has made available to his patients and to the general public, entitled: Stop Smoking, I Like to Study, Exercise, Self-Confidence, Relaxation, Memory, Concentration & Stress. Dr. Tuthill has shared with the authors some of the more interesting results reported by his patients. Apparently there have been no dissatisfied listeners -- all seeming to react favorably, and some outstandingly well, as

epitomized in the following delightful case history of Ms. J.B.:

> "Ms. J.B. (a 27-year old body-building enthusiast/ instructor. This patient does 1,000 leg-lift repetitions each day as a part of her regular floor exercise program. I gave her our 'Exercise' tape at her request and told her to return in two weeks. The positive affirmations on the tape are enclosed.
>
> "Ms. B. returned in two weeks and reported doing 2,000 leg lifts daily with good results. At the end of the third week, she reported an all-time high of 3,800 leg lifts and a general doubling of her floor exercises. I would note that Ms. B. is currently unemployed and plays her tape a great deal.
>
> "An interesting side effect, apparently from the tape, occurred to this lady's cat. The cat has lived indoors ever since birth. It has not ventured outside in five years. The cat is also a little fat and sluggish. When Ms. B. played her tape, the cat showed signs of increasing activity -- pacing the room and finally running around the house quite playfully. Ms. B. said she has started to let the cat outside every day, and the animal is much more active and is toning up!"

CONCLUSIONS

From the foregoing overview of Subliminal Communication, quantitative positive results from several laboratory experiments, and encouraging results from commercial and industrial field applications -- all carried out by experienced and credible investigators -- it appears most reasonable persons would conclude that the phenomenon known variously as *subliminal perception, subsception, subliminal communication,* and *perception without awareness* is not only real and repeatable from laboratory to laboratory, but also is beginning to exhibit its identity and take its place in a spectrum of societally beneficial field applications -- recently referred to as Applied Subliminal Communication™ for Human Resource Potentiation.

Although a few minimal "paradoxical effects" and "idiosyncratic responses" have been reported in the literature, there has been no proven harm to anyone from the use of subliminals -- even though subliminals have been experimented with by professionals and dilettantes alike for scores of years.

The question of how to define *ethical* and *unethical* uses of this proven phenomenon is often raised, and this question needs serious attention now and in the future in order to seek and discover reasonable answers. However, such considerations are beyond the scope of this paper. It will constitute the principal focus of a later publication by these authors.

In 1964, after surveying over a hundred related papers, Bevan wrote:

"...that the topic has come of age is indicated by several facts. Experiments are no longer directed simply toward establishing subliminal perception as an empirical phenomenon but incline more toward examining its influence upon a variety of behavioral events..."

Then in 1980, Shevrin and Dickman stated:

"The notion of complex psychological processes operating outside of awareness has traditionally been associated with the concept of the unconscious used by psychodynamically oriented clinicians; it has never found an equivalent place in the mainstream of American experimental psychology. However, mounting evidence from several rather diverse fields of empirical research (*e.g.*, selective attention, cortical evoked potentials, subliminal perception) provides support for such a concept, and, in fact, explanatory constructs of a similar nature have been embodied in several current models of perceptual processing."

The investigations that the authors of this paper have conducted impel them to believe that the appropriately subtle and sensitive uses of carefully selected and adequately presented (*i.e.*, an *adequate stimulus* nearly 100% of the time) *subliminal communication stimuli* could create significant educational and healthy therapeutic responses in situations that heretofore have been intractably resistant. It appears that we now have available a technologically feasible, practical, readily implementable way not only to enliven and activate healthy unconscious wishes and drives that might have become "psychostatic," but also impart new and useful information into the unconscious, while at the same time increasing selective attention and potentiating awareness -- *all* while the subject is engaged in *normal* activities.

With specific relevance for the Clinical Hypnotist, the authors' experience using the combined techniques of hypnosis and subliminal communication suggests that accessing the unconscious through subliminal communication is probably one of the most promising routes to provide post-hypnotic suggestion.

NOTES

1. MARK III-B Programmable Analog Audio Subliminal Processor (U.S. Patent No. 3,278,676) -- available to qualified professional therapists from Behavioral Engineering Corp., 4801 Green Acres Court, Metairie, LA 70003. Telephone (504)455-2999.

2. *Pink* noise is usually defined as *white noise* that has been passed through a filter having a 3db per octave attenuation or "roll-off" with increasing frequency. In practice, however, depending upon the specific application, the "pinkness" of the filtered noise is tailored as a function of frequency to meet the specific needs using a set of continuously variable active filters spaced 1/3 octave over the frequency range desired. In other words, the power density curve of the pink noise spectrum is shaped to fit the investigator's necessary criteria. The Soundolier MG 1500 Masking Noise Generator (see Note 4, below) is such an instrument.

   White noise sounds more or less like the sound from a television set whose station channel selector is set to an unused channel -- a hiss and crackle sound that is fairly obtrusive. *Pink noise*, however, sounds more or less like the soft, unobtrusive sound of a well-designed air-conditioning louvre.

   One of the reasons for using *pink noise* in subliminal applications is that the choice of an optimal music supraliminal signal frequently becomes difficult, or even impossible.

3. Subliminal *veridicals* are defined as concise statements of universal *truth, e.g.*:

   Stealing is dishonest.
   Speeding is dangerous.
   Reading is fun.

   whereas subliminal *affirmations* are defined as concise declarative statements of *desired attributes or conditions, e.g.*:

   I do not steal.
   I do not speed.
   I like to read.

4. MG 1500 Masking Noise Generator, Soundolier, Inc., 9380 Watson Industrial Park, St. Louis, MO 63126.

5. For a lucid exposition of the elegantly simple Yates Correction, see Downie, N.M., & Heath, R.W. Basic Statistical Methods, 4th Ed. Harper & Row, New York, 1974, 196-199.

6. McDonagh Medical Center, 2800-A Kendallwood Pkwy., Gladstone, MO 64119 (Dr. E. W. McDonagh).

NOTES (Continued)

7. Kick the Diet Habit, a Health Promotion/Weight Control Audiocassette using Subliminal Communication. Music© Thomas J. Valentino, Inc., 1982, © and ℗ 1982 Behavioral Engineering Corp., 4801 Green Acres Court, Metairie, LA 70003.

8. A Special Research Project by Ms. Pamela Finnegan in partial fulfillment of the requirements for the Master's Degree in Nutrition, Dept. of Nutrition, Tulane University School of Public Health and Tropical Medicine, New Orleans, LA, August, 1979.

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President

February 20, 1981

Subliminal Communication
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Senator Paul Tsongas
342 Russell Building
Washington, D.C. 20510

SUBJECT: Response to Your Telephone Request through Ms. Phyllis Bernstein for Information on My Work in Subliminal Communication

Dear Senator Tsongas:

I am happy to respond to your request for information on my company's activities in the societally beneficial applications of Subliminal Communication. I wish to assure you that I intend to cooperate in every reasonable way with you and other responsible officials. In this vein I have enclosed several documents (including my Curriculum Vitae, Encl. 1) and photocopies of various items from the media, along with a List of References to additional documents that are important and relevant to your request. Since during the last three years there have been hundreds of articles, radio shows and televisicn presentations -- both pro and con -- concerning the use of Subliminal Communication, the enclosed documents and List of References should not be considered by any means complete or comprehensive. They simply represent my selection of a minimal number of related items in both "for" and "against" categories. Some, in my opinion, are clearly irresponsible and inflammatory...

The recent flurry of publicity began in April, 1978, when Mrs. Norma Glanzer and I presented a paper to an Electronics Engineering Annual Conference in Atlanta, entitled "Subliminal Communication: Advances in Audiovisual Engineering Applications for Behavior Therapy and Education" (Encl. 2). In this paper we tried to highlight certain societally beneficial uses of Subliminal Communication in the field, including weight control, and in the Discussion session of the paper -- honesty reinforcement, theft determent, and loss prevention in industrial and commercial settings. The Associated Press picked up the latter application and alluded to it on the AP international wire as "Dr. Becker's Electronic Conscience" -- later dubbed by the media "Dr. Becker's Little Black Box."

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Since April, 1978, I have been interviewed by more than 300 journalists -- newspaper, magazine, radio, and television -- to whose requests I have attempted to respond responsibly in a field of activity that is clearly sensitive and controversial. Most of the media representatives have cooperated in my attempt to inform the public about what should and should not be expected from the use of subliminals. However, some of the writers have behaved irresponsibly (Encl. 3,4,5). In contrast to the latter publications are several responsibly written ones (Encl. 6,7,8,9,10; Refs. B,C,D,E).

Some public officials have operated with open minds in bringing the latest information on crime prevention to the attention of those who are in a position to use it. For example, Attorney General William Guste, Jr., State of Louisiana, has been conducting Seminars on shoplifting (Encl. 11; Ref. F) in various cities over the last few months. Although Attorney General Guste makes it clear in these Seminars that he is not endorsing me or my company's instruments, it has been my honor, at his invitation, to speak at the last two of these Seminars held in Lake Charles, Louisiana, and Shreveport, Louisiana. Attorney General Guste and certain other responsible officials realize that crime -- juvenile crime and adult crime -- are no longer responding effectively to conventional methods. They also seem willing to consider the possibility that subliminal techniques just might be one of the most effective and economical methods of crime prevention ever discovered. All seem to agree that PREVENTION is the stratagem for success in future handling of crime. It is clear to all of us that prevention is enormously better than detection and apprehension, both for the private individuals involved and the authorities -- and obviously also the taxpayers. The Program from Attorney General Guste's latest Seminar in Shreveport, Louisiana, is enclosed (Encl. 11).

Since 1951 my colleagues and I have been carrying out research and development programs in the field of subliminal perception, or, as I prefer to call it, "Subliminal Communication." More and more scientific and real-world field evidence is appearing which strongly indicate that visual and audio Subliminal Communication are economical, efficient, unobtrusive, and powerful methods for enlivening and activating healthy unconscious wishes and drives, while also imparting new and useful information to one's unconscious (Encl. 12,14,15) -- while he or she is fully aware of and attending to normal activities at work or in recreation.

Neither my company nor I have ever used subliminals in any advertising, political, or religious setting, because I feel such use would be inappropriate.

Although more work needs to be done on the applications of subliminal methods in crime prevention and therapeutic settings, significant evidence of their power and future potential in these applications already exist (Encl. 2,6,7, 8,9,10,14,15,16,17; Refs. C,D,E).

I frequently receive letters and telephone calls from distraught, desperate parents whose kids are into crime and/or substance abuse. I believe properly administered subliminal video and audio therapy could be effective in these cases, and we are working toward proving this -- but in a boot-strap funding way, *i.e.*, funding our own R & D -- unsupported by any contracts or grants. And we are making significant though modest progress.

Subliminal Communication might just be the most effective therapeutic method yet discovered to help in these areas that seem not to respond well to conventional therapies.

But now enters the ACLU's New York Legislative Director, Ms. Barbara Shack, who is quoted in the Wall Street Journal (Encl. 3) as stating "The potential for abuse is enormous... If it is a distortion of sound and camouflaged so the receiver isn't aware and can influence his behavior, it's tantamount to brainwashing and ought to be prohibited by legislation."

I consider Ms. Shack's statements irresponsible, not based upon fact, and clearly inflammatory. She has used emotionally loaded words, and she, herself, has frightened her readers in order to impel them to enter complaints about subliminal methods and instruments -- specifically ours...

In my opinion the Wall Street Journal also acted irresponsibly in publishing Ms. Shack's charged statements without affording me an opportunity to rebut her charges in the same article. I believe this is WRONG, and counter to the public interest.

Further examples of this kind of less-than-responsible, emotionally driven journalism follow. Incidentally, the negative letters that you are receiving from your constituents probably stem from the effect of these articles.

From the Boston Globe of December 14, 1980 (Encl. 4), "The ACLU, by the way, is objecting to the Box, and Barbara Shack, legislative director of the group's New York branch, has said, 'the potential for abuse is enormous.' 'It's tantamount to brainwashing and ought to be prohibited by legislation,' she said. Amen, hallalujah, and go get 'em Barbara. Retalliate, retalliate. The rest of us should do

the same. Yell, scream, write congresspersons, call Louisiana, (504-455-2999), and pull the plug on Becker, no matter how 'good' for us his messages are supposed to be." My General Counsel tells me that some of the statements in this article by Susan Trausch border "perilously on character defamation."

From The Leader of February 5, 1981, reprinted from the Christian Science Monitor (Encl. 5), "The real threat in a free society is that such attempts at thought control -- or 'behavioral modification,' as its promoters call it -- would be tolerated at all." and "Nevertheless, this technique is an invasion of thinking. It could easily be put to political or oppressive purposes. It should be prohibited."

In my opinion, the statements I have quoted above, and others in these articles are not only reckless and irresponsible, but also are counter to the public interest since they in effect recommend *legislation against crime prevention.*

What really bothers me is that local, state, and federal legislators just might fall for this kind of radicalism since these articles have been published in such respected, credible, and well-read organs like the Wall Street Journal, the Boston Globe, and the Christian Science Monitor.

I am not adverse to some kind of reasonable regulatory statutes for subliminals, and I would be happy to serve on any duly constituted commission responsibly designed to explore this area. As I stated earlier, I am attempting to respond responsively in a societally beneficial way in a field of research, development, and application that is sensitive and controversial -- at least on the surface -- which is where most of the critics are operating.

It is important, however, to realize that even though professionals and amateurs as well have experimented with subliminals over the last 100 years, *there has been no proven case of significant harm having come to anyone from the use of subliminals.*

Regarding alleged "invasion of privacy," it is important to remember that all property owners have a legal right to use reasonable means to protect their property. Can you think of any more reasonable means than a simple inaudible message that said, "I am honest. I will not steal."?

It is no longer a question of whether or not the use of subliminals in places where the public gathers -- private property or not -- constitutes an invasion of privacy. Obviously it is an "invasion of privacy" to some degree. The important question is, does it constitute a *serious* invasion of privacy, and if it does, then what should be done about it?

This is a *real* world we live in -- not a storybook, fictional one. In our real world are numerous daily invasions of privacy -- some trivial, and some very serious. Some of the serious ones we excuse because we feel that their benefits to society outweigh their intrusions.

A serious invasion of privacy that I find impossible to excuse is the injury and death of completely innocent persons from automobile accidents. It is entirely possible that the use of Public Service Message subliminals on television and radio could significantly reduce the number of urban and highway accidents. Instead of entertaining thoughts of, and actively recommending legislation to prohibit the public use of subliminals, shouldn't we seriously be considering the positive side -- *e.g.*, a request to the Federal Communications Commission for a new comprehensive review and analysis of the benefits that could accrue in the public interest by encouraging television and radio Public Service Messages?

In order to restore some kind of real-world perspective in the mind and vision of our detractors, it might be productive to remind them that we are still killing more than 50,000 people each year with automobiles, and who knows how many are killed with kitchen knives. Then remind our detractors once again that no one has been proven harmed in any significant way by the use of subliminals.

Regarding what can and cannot be accomplished with subliminals, Eric Lander in the February, 1981, issue of OMNI Magazine (Ref. E, page 46) states, "Unfortunately for the movie's creators, turning the population into zombies by subliminal subterfuge is the only thing scientists unanimously agree is out of the question. Now they are trying to decide just what is possible." Lander's article is informative, responsible, and for the most part -- accurate. I respectfully suggest that you read it carefully.

SUMMARY

This report has been prepared under pressure in the face of an already heavy schedule to comply as best I could with your urgent request for information relayed to me through your Administrative Assistant, Ms. Phyllis Bernstein, who spoke with my wife, Pat. I hope it will help you in your decisions regarding responses to your constituents who have shown their interest and concern in this matter. I WOULD APPRECIATE RECEIVING COPIES OF THEIR COMMUNICATIONS SO THAT I MIGHT RESPOND WITH FINER FOCUS AT A LATER TIME.

Some of the Enclosures and References that I have not referred to directly are important for reasons that would require many more pages to outline. One of these is Corrigan's Doctoral Dissertation (Ref. A). Please secure a copy and at least scan it for relevancy.

38-833 O—84——5

Uses of subliminals in Therapy and Human Resource Potentiation are set forth in the remaining Enclosures and References.

Please let me know if I can be of further help.

Respectfully,

BEHAVIORAL ENGINEERING CORPORATION

Hal C. Becker, Ph.D.
President

HCB/pb

Enclosures

cc- President Ronald Reagan
The Honorable J. Bennett Johnston
The Honorable Russell Long
The Honorable Robert Livingston
The Honorable Lindy Boggs
The Honorable Billy Tauzin
The Honorable Charles Roemer, Jr.
The Honorable Jerry Hackabee
The Honorable W. Hanson Moore
The Honorable John B. Breaux
The Honorable Gillis W. Long
The Honorable David C. Treen, Governor of Louisiana
Attorney General William J. Guste, Jr., State of Louisiana
Dr. Robert E. Corrigan
Mr. William B. Reinhardt, Jr., Esq.

LIST OF ENCLOSURES

1. Curriculum Vitae, Hal C. Becker, Ph.D.

2. Becker, Hal C. and Glanzer, Norma H. "Subliminal Communication: Advances in Audiovisual Engineering Applications for Behavior Therapy and Education," presented 1978 Institute of Electrical and Electronics Engineers Region 3 Conference, April 10-12, 1978, Atlanta, Georgia.

3. Wall Street Journal, November 25, 1980, article by Neil Maxwell, "Words Whispered to Subconscious Supposedly Deter Thefts, Fainting."

4. Boston Globe, December 14, 1980, article by Susan Trausch, "This Mamma Will Faint If She Wants To."

5. The Leader, February 5, 1981, article by Robert C. Cowen from Christian Science Monitor, "Subliminal Warrants Caution."

6. Cincinnati Enquirer, April 17, 1977, article by Bill Boshears, "Subconscious Can Be Guide for Dieters."

7. London Daily Mail, October 2, 1978, article by John Womersley, "Should You Be Brainwashed Like This To Be Honest?"

8. New Orleans Times-Picayune, October 19, 1980, article by Angela M. Carll, "Subliminal Effects Achieved by Metairie Inventor's Box."

9. TIME Magazine, Behavior Section, September 10, 1979, "Secret Voices: Messages That Manipulate."

10. Kansas City Times, February 4, 1981, "Pool Sitter Praises Odd Pals."

11. Program for SEMINAR ON SHOPLIFTING, conducted by Louisiana State Department of Justice, Caddo Parish District Attorney's Office, and Retail Merchants' Council of the Shreveport Chamber of Commerce.

12. Becker, H.C. *et al.* "Subliminal Communication: Biological Engineering Considerations," presented at 6th International Conference on Medical Electronics and Biological Engineering, 1965, Tokyo, Japan.

13. Becker, H.C. *et al.* "Video and Audio Signal Monitors/Processors for Subliminal Communication in Weight Control," presented at 12th Annual Meeting of Association for the Advancement of Medical Instrumentation, March 13-17, 1977, San Francisco.

14. Becker, H.C. *et al.* "Applications of Subliminal Video and Audio Stimuli in Therapeutic, Educational, Industrial, and Commercial Settings," presented to 8th Annual Northeast Bioengineering Conference, M.I.T., March 28, 1980.

LIST OF ENCLOSURES (Continued)

15. Becker, H.C. *et al.* "New Subliminal Processors for Therapy, Industry & Education," presented at 33rd Annual Conference on Engineering in Medicine and Biology, Washington, D.C., September 30-October 3, 1980.

16. Brochure of Becker Weight Control Program©

17. Brochure of Mark VI Digital Audio Subliminal Processor, "What Is Dr. Becker's Black Box?"

LIST OF REFERENCES

A. Corrigan, R.E. "Verbal, Visual, and Motor Responses as Indicators of Personal Values in Perception," Doctoral Dissertation, submitted May, 1954, to Department of Psychology, Tulane University of Louisiana.

B. LIFE Magazine, March 31, 1958, article by Herbert Brean, "Hidden Sell Technique is Almost Here."

C. Family Health, 1978, article by Art Athens, "Beware: Here Come the Mind Manipulators."

D. Los Angeles DAILY NEWS, January 19, 1981, article by Ira Rifkin, "His Subliminal Message Is All In Your Mind."

E. OMNI Magazine, February, 1981, article by Eric Lander, "In Through the Out Door."

F. Booklet: "Shoplifting -- A Discussion of the Law," prepared by the Louisiana State Department of Justice, William J. Guste, Jr., Attorney General.

ENCLOSURE 17

What is Dr. Becker's Black Box? ? ?

FAMILY HEALTH, Art Athens
"... probably most efficient ... anti-crime device, otherwise known as 'Dr. Becker's Little Black Box' ..." (1978)

LONDON DAILY MAIL, John Wormsley
"... and as Dr. Becker flicked the dials of his little box of electronic tricks, science crossed a threshold ..." (1978)

TIME MAGAZINE, Behavior Section
"... store's managers call their 'little black box' a kind of electronic conscience ..." (1979)

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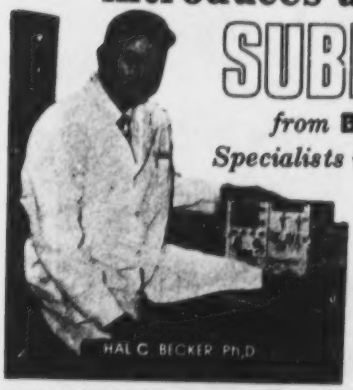

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KATHLEEN D. CHARBONNET
Systems Associate
with the BEC MK VI Digital
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*Becker, H.C. et al. *"Applications of Subliminal Video and Audio Stimuli in Therapeutic Educational, Industrial, and Commercial Settings,"* Proceedings of Eighth Annual Northeast Bioengineering Conference, Massachusetts Institute of Technology, Cambridge, Mass., March 20, 1980.

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Operations Mgr. of Dept. Store Chain

Brief Resume of
HAL C. BECKER, B.E., M.S., Ph.D.

Dr. Becker holds three degrees from Tulane University in New Orleans. He was a Faculty Member of the Tulane Medical School for 27 years. He has published more than 40 research papers and holds several patents. He is listed in *AMERICAN MEN OF SCIENCE, WHO'S WHO IN AMERICA,* and *INTERNATIONAL WHO'S WHO IN MEDICAL ENGINEERING.* In 1963 he received the IBM Corporation's Outstanding Technical Contribution Award for Digital Computer Retrieval of Medical X-Ray Images. Dr. Becker is a Registered Professional Engineer, and a Certified Clinical Engineer.

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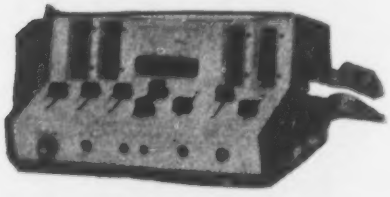

*U.S. Patent No. 3,278,676

Dr. Becker and his work in Subliminal Communication have been featured in:

- LIFE MAGAZINE (1957)
- NEWSWEEK (1957)
- FAMILY HEALTH (1978)
- LONDON DAILY MAIL (1978)
- TIME MAGAZINE (1979)
- NEW YORK TIMES (1979)
- WALL STREET JOURNAL (1979)
- *THAT'S INCREDIBLE!* (1980)
- OMNI MAGAZINE (1981, 1982)
- *TO TELL THE TRUTH* (1981)
- *PM MAGAZINE* (1981, 1983)

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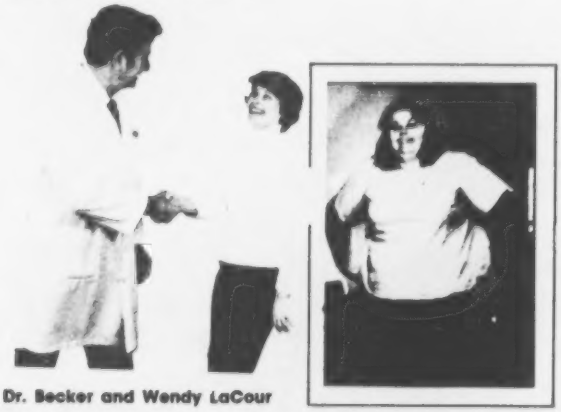

Dr. Becker and Wendy LaCour

Brief Resume of
HAL C. BECKER, B.E., M.S., Ph.D., C.C.E., P.E.

Dr. Becker holds three degrees from Tulane University in New Orleans. He was a Faculty Member of the Tulane Medical School for 27 years. He has published more than 40 research papers and holds several patents. He is listed in *AMERICAN MEN OF SCIENCE, WHO'S WHO IN AMERICA*, and *INTERNATIONAL WHO'S WHO IN MEDICAL ENGINEERING*. In 1963 he received the IBM Corporation's Outstanding Technical Contribution Award for Digital Computer Retrieval of Medical X-Ray Images. Dr. Becker is a Registered Professional Engineer and a Certified Clinical Engineer.

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Post Office Box 8856
Fort Collins, Colorado 80525

CURRICULUM VITAE April, 1984

Hal C. Becker, B.E., M.S., Ph.D., P.E.

A. PERSONAL DATA:

Born July 12, 1922; Married; One Daughter 27 yrs. old, married

Office/Laboratory/Home Address and 'Phone Numbers:

4104 Sumter Square — Ofc./Lab. (303)223-5675
Fort Collins, CO 80525 — Residence (303)223-3172

B. CURRENT PROFESSIONAL AFFILIATIONS:

President, BEHAVIORAL ENGINEERING CORPORATION

Research, Development, and Application of Instrumentation and Techniques for Video and Audio Subliminal Communication and Other Life Science Processes such as the Becker Weight Control Program© and a new series of Self-Help Subliminal Audiocassettes entitled "HEADED FOR SUCCESS." (The BWCP© employs Subliminal Communication in a Multimodal, Multifocal Behavioral Modification Weight Control Program that stresses proper nutrition and adaptive eating habit changes with mild exercise.)

President, HAL C. BECKER ENTERPRISES, INC.

Marketing products of Behavioral Engineering Corporation.

President, UNCORKERS, LTD.

Marketing The UNCORKER™, Champagne Plastic Cork Extractor.

C. FORMAL EDUCATION:

1938-42 Tulane University of Louisiana, B.E. in Electrical Engineering, June, 1942

1942-43 Massachusetts Institute of Technology, Special Training in Ultra-High Frequency Techniques, Differential Equations, Electromagnetic Fields

1946-53 Tulane University of Louisiana, The Graduate School, M.S. in Physics

1953-54 Princeton University, The Graduate School, Further Studies in Electrical/Electronics Engineering and Physics

1973 George Washington University, School of Engineering and Applied Science, Continuing Education Program, "Implementation of Clinical Engineering"

1973-74 Tulane University of Louisiana, The Graduate School, Interdisciplinary Ph.D. in Biomedical Communications Awarded December, 1974, from the Department of Psychology through The Center for Teacher Education

1974 Education Committee of the Association for the Advancement of Medical Instrumentation. Sheraton Park Hotel, Washington, D.C. "The Computer in Clinical Electrocardiography"

D. PROFESSIONAL EXPERIENCE (NS = Number of People Supervised):

1942-45 Research Associate, Radiation Laboratory, Massachusetts Institute of Technology. Radar bombsight development. (NS: 3)

1945-46 Assistant Project Engineer, Bendix Radio, Baltimore, Maryland. Television development. (NS: 3)

1946-47 Instructor, Department of Physics, Tulane University of Louisiana.

1947-49 Marine Radio Engineering, Self-employed, Hal C. Becker Electronics, Inc., New Orleans, La., Sales, engineering, installation, and maintenance of communications and navigational instruments (NS: 4)

1949-53 Research Electronics Engineer, Department of Psychiatry and Neurology, Tulane University School of Medicine. (NS: 2)

1952-53 Consultant, Medical Physics, Southeast Louisiana State Hospital, Mandeville, La. (NS: 2)

1954-58 Assistant Professor of Experimental Neurology, Tulane University School of Medicine. (NS: 2)

1954-present Vice President, Research and Development, PRECON Process and Equipment Corporation, Research and development in subliminal communication. (NS: 3)

1954-60 Consultant, Premature Infant Center, Charity Hospital of Louisiana at New Orleans.

1959-60 Head, Data Processing Section, Collaborative Child Development Program, Charity Hospital of Louisiana at New Orleans. (NS: 4)

1960-61 Senior Scientist, Department of Clinical Research, Eastern Pennsylvania Psychiatric Institute. (NS: 2)

1961-64 Systems Engineer--Medical, IBM Corporation. Computers in Life Sciences. (NS: 4)

1964-65 Associate Research Scientist, Tulane Computer Center. (NS: 4 to 6)

1962-70 Consultant, Eastern Pennsylvania Psychiatric Institute.

1964-69 Associate Professor of Biomedical Engineering (Radiology), Tulane University School of Medicine.(NS: 4)

1964-73 Director, Radiology Research Laboratories, Tulane University School of Medicine.(NS: 6)

1969-73 Professor of Biomedical Engineering (Radiology), Tulane University School of Medicine. (NS: 6)

1964-70 Lecturer, Department of Psychiatry and Neurology, Tulane University School of Medicine.

1965-73 Visiting Scientist, Department of Diagnostic Radiology, Charity Hospital of Louisiana at New Orleans.

1967-73 Consultant in Biomedical Engineering, Department of Diagnostic Radiology, Charity Hospital of Louisiana at New Orleans.

1969-73 Technology Utilization Consultant at Tulane University, NASA Biomedical Applications Team, Research Triangle Institute, Research Triangle Park, North Carolina.

1973-75 Professor of Biomedical Engineering, Director of Laboratory for Clinical and Behavioral Engineering, Tulane University.

E: PATENTS:

United States Patent No. 2,953,689, Actuating System, 1960

United States Patent No. 3,060,795, Apparatus for Producing Visual Stimulation, 1962

United States Patent No. 3,278,676, Apparatus for Producing Visual and Auditory Stimulation, 1966

United States Patent No. 3,557,371, Method and Apparatus for Calibrating a Cardiac X-Ray Synchronizer, 1971
This patent covered in following countries:
Great Britain, No. 29257/69, 1971
Germany, No. P 1929131.7, 1971
Japan, No. 45117/69, 1971
Canada, No. 053,847, 1971
Switzerland, No. 8726/69, 1971

United States Patent No. 3,626,932, Method and Apparatus for Double Pulse Cardiac X-Ray Synchronizer, 1971
Japan, No. 81480/69, 1969

Germany, No. P 1951232.4, 1969
France, No. P.V. 6934765, 1969
Great Britain, No. 50096/69, 1969
Sweden, No. 13976/69, 1969
Canada, No. 064,487, 1969

United States Patent No. 4,437,360, Apparatus for Controlled Stopper Extraction from and Reinsertion in Sparkling Wine Bottles, 1984.

F. AWARDS:

1951 Grass Trust Fellowship (Summer), Woods Hole, Massachusetts, Marine Biological Laboratory

1953-54 Arthur LeGrand Doty Fellowship, Princeton University

1955 Sigma Xi Award for Research (Master's Thesis)

1963 Outstanding Technical Contribution Award, International Business Machines Corporation, "Digital Computer Retrieval of X-Ray Images"

G. LICENSES AND CERTIFICATES:

1951-present Registered Professional Engineer, State of Louisiana, Reg. No. 3779

1937-present United States Amateur Radio License

1948-present United States Commercial Radiotelephone License, First Class

1976 Certification in Clinical Engineering by AAMI Board

1984 Certification in Clinical Engineering by International Certification Commission

H. PROFESSIONAL SOCIETIES:

Institute of Electrical and Electronics Engineers:
Member of Professional Group on Computers
Member of Professional Group on Engineering in Medicine and Biology (G-EMB)
Organizer and Chairman (1966-67) of New Orleans Chapter of the G-EMB
Member of the Executive Committee of New Orleans Section (1969-70)
Vice Chairman of the New Orleans Section (1970-71)
American Association for the Advancement of Science
Research Society of America
Louisiana Engineering Society
Association for the Advancement of Medical Instrumentation
Member of Advisory Board, Clinical Engineering News

National Society of Professional Engineers
Society of Tulane Engineers
Society for Radiological Engineering
Association for Computing Machinery and its special interest group: Biological Information Organization
Society of Photo-Optical Instrumentation Engineers
Radiological Society of Louisiana
American Association of University Professors
Marine Technology Society
American Society for Oceanography
National Rifle Association
United States Power Squadron

I. HONORS:

Tau Beta Pi, Sigma Pi Sigma, Sigma Xi, Kappa Delta Pi

Listed in American Men of Science, Who's Who in the South and Southwest, Who's Who in America, International Who's Who in Medical Engineering, Men of Achievement

J. PUBLICATIONS:

1. In Books

Becker, H.C., Peacock, S.M., Jr., "Subcortical Stimulation Techniques," Heath, R.G., (ed.), Chapter 12 of Studies in Schizophrenia, (Harvard University Press, Cambridge, Mass., 1954, pp. 201-233.

Becker, H.C., Founds, W.L., Jr., "Improvements in the Technique for Implanting Subcortical Electrodes by a Stereotaxic Method," Heath, R.G., (ed.), Section VI, Addendum D to Studies in Schizophrenia, Harvard University Press, Cambridge, Mass., 1954, pp. 565-570.

Becker, H.C., Peacock, S.M., Jr., "Improvement in the Technique of Electrical Stimulation," Heath, R.G., (ed.), Section VI Addendum D to Studies in Schizophrenia, Harvard University Press, Cambridge, Mass., 1954, p. 571.

Becker, H.C., Peacock, S.M., Jr., Heath, R.G., Mickle, W.A., "Stimulation Control and Electrographic Recording," Sheer, D.E., (ed.), Chapter 8 of Electrical Stimulation of the Brain, University of Texas Press, Austin, Texas, 1961, pp. 74-90.

Meyers, P.H., Moser, P.J., Nice, C.M., Jr., Elder, S.T., Becker, H.C., Meckstroth, G.R., A Programmed Introduction in Differential Diagnosis of Lung Disease, Published by the Department of Radiology, Tulane University School of Medicine, New Orleans, Louisiana, 1964.

2. Papers Published

Becker, H.C., Hodes, R., Pounds, W.L., Jr., and Peacock, S.M., Jr., "Application of Autosyns to Multi-Channel Physiological Recording," Proceedings of the Society of Experimental Biology and Medicine, April, 1951, 76:761-763.

Becker, H.C., Pounds, W.L, Jr., Peacock, S.M., Jr., Heath, R.G., Llewellyn, R.C., Mickle, W.A., "Roentgenographic Stereotaxic Technique for Implanting and Maintaining Electrodes in the Brain of Man," Journal of EEG and Clinical Neuro-Physiology, August, 1957, 9:3.

Becker, H.C., Mickle, W.A., Heath, R.G., "A Variable Frequency, Variable Selectivity Filter for Electroencephalograph," EEG and Clinical Neuro-Physiology, November, 1958, 10:4, 731-735.

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Meyers, P.H., Becker, H.C., Sweeney, J.W., Nice, C.M., Jr., and Nettleton, W.J., Jr., "Evaluation of a Computer Retrieved Radiographic Image," Radiology, August, 1963, 81:2, 201-206.

Nice, C.M., Jr., Becker, H.C., Meyers, P.J., Sweeney, J.W., Nettleton, W.J., Jr.,"Evaluation of a Computer Retrieved Radiographic Image," Proceedings of the 5th IBM Medical Symposium, October, 1963.

Bonner, R.E., Yoder, R.D., Becker, H.C., Schenthal, J.W., Sweeney, J.R., "Pattern recognition of Electroencephalograms," Proceedings of the 5th IBM Medical Symposium in Endicott, New York, October, 1963.

Meyers, P.H., Becker, H.C., Sweeney, J.W., Nice, C.M., Jr., and Nettleton, W.J., Jr., "Evaluation of Computer Reconstructed Radiographic Images," Radiology, February, 1964, 82:303.

Becker, H.C., Okubo, S., "Heart and Rib Cage Dimensions Measured and Cardiothoracic Ratio Determined Automatically by IBM 1410 Computer Analysis of Digital X-Ray Film Images," IBM Technical Information Exchange, White Plains, New York, April, 1964.

Becker, H.C., Nettleton, W.J., Jr., Meyers, P.H., Sweeney, J.W., Nice, C.M., Jr., "Digital Computer Determination of a Medical Diagnostic Index Directly from Chest X-Ray Images," IEEE Transactions on Biomedical Engineering, July, 1964, BME 11:3, 67-72.

Meyers, P.H., Nice, C.M., Jr., Becker, H.C., Nettleton, W.J., Jr., Sweeney, J.W., Meckstroth, G.R., "Automated Computer Analysis of Radiographic Images," Radiology, December, 1964, 83:6, 1029-1034.

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Becker, H.C., Corrigan, R.E., Elder, S.T., Tallant, J.D., Goldstein, M., "Subliminal Communication: Biological Engineering Considerations," Digest of the 6th International Conference on Medical Electronics and Biological Engineering, Tokyo, Japan, August 22-27, 1965, pp. 452-453. Presented to the 6th International Conference on Medical Electronics and Biological Engineering, Tokyo, Japan, August, 22-27, 1965.

Becker, H.C., Longenecker, H.E., Jr., Cusachs, L.C., "Pictures of Molecular Orbitals," Communications of the ACM, September, 1965, 8:9581-582.

Becker, H.C., "Summary Progress Report and Budget Information: NIH Grant 11619, Computer Analysis of Radiographic Images," Internal report dated May 11, 1965.

Meyers, P.H., Nice, C.M., Jr., Meckstroth, G.R., Becker, H.C., Moser P.J., Goldstein, M., "Pathologic Studies Following Magnetic Control of Metallic Iron Particles in the Lymphatic and Vascular System of Dogs as a Contrast and Isotopic Agent," American Journal of Roentgenology, Radium Therapy and Nuclear Medicine, April, 1966, 96:4:913-921.

Becker, H.C., Meyers, P.H., Nice, C.M., Jr., Goldstein, M., "Cardio-Pulmonary X-Ray Synchronizer with Cathode-Ray Tube Display," Proceedings of the Symposium on Biomedical Engineering, Marquette University, Milwaukee, Wisconsin, June 23-25, 1966, 1:28-31.

Becker, H.C., Elder, S.T., "Can Subliminal Perception Be Useful to the Psychiatrist?" Excerpta Medica, International Congress Series No. 117, Excerpta Medica Foundation, pp. 114-115, Abstract of paper presented to the IV World Congress of Psychiatry, Madrid, Spain, September 5-11, 1966.

Becker, H.C., Meyers, P.H., Nice, C.M., Jr., "Density to Hue Transformation for Medical Radiographs," Abstracts: Second International Biophysics Congress, Vienna, Austria, September 5-9, 1966. Presented to the Second International Biophysics Congress, Vienna, Austria, September 5-9, 1966.

Becker, H.C., Meyers, P.H., Nice, C.M., Jr., "Laser Light Diffraction, Spatial Filtering and Reconstruction of Medical Radiographic Images: Preliminary Results," Conference Record of the 1967 IEEE Region III Meeting, Jackson, Mississippi, April 17-19, 1967.

Becker, H.C., Meyers, P.H., and Nice, C.M., Jr., "Laser Light Diffraction, Spatial Filtering, and Reconstruction of Radiographic Images: Preliminary Results," Digest of the 7th International Conference on Medical and Biological Engineering, Stockholm, Sweden, August, 1967. Presented to the 7th International Conference on Medical and Biological Engineering, Stockholm, Sweden, August, 1967.

Becker, H.C., Meyers, P.H., Nice, C.M., Jr., Goldstein, M., "A New Cardiac X-Ray Synchronizer System with Cathode-Ray Tube Display," Record of the IEEE 1968 Region III Convention, April 22-24, 1968.

Becker, H.C., Meyers, P.H., Nice, C.M., Jr., Goldstein, M., "A New Cardiac X-Ray Synchronizer System with Cathode-Ray Tube Display," The Bulletin of the Tulane University Medical Faculty, May, 1968, 27:2:147-153.

Becker, H.C., Meyers, P.H., Nice, C.M., Jr., "Laser Light Diffraction, Spatial Filtering, and Reconstruction of Medical Radiographic Images: A Pilot Study," IEEE Transactions on Bio-Medical Engineering, July, 1968, BME-15: 186-195.

Becker, H.C., Meyers, P.H., Nice, C.M., Jr., "Laser Light Diffraction, Spatial Filtering and Reconstruction of Medical Radiographic Images: Preliminary Results," Annals of the New York Academy of Sciences, March, 1969, 157:1:465-486.

Gammill, S.L., Krebs, C., Mevers, P.H., Nice, C.M., Jr., Becker, H.C., "Cardiac Measurements in Systole and Diastole," Radiology, January, 1970, 94:1:115-119.

Becker, H.C., Neely, J.H., Gutierrez, R., Neely, D.L., Tallant, J.D., "A New Continuing Education Videotape Learning System and Evaluation Package, Part I," Record of the IEEE 1971 Region III Convention, April, 1971, Charlottesville, Virginia.

Becker, H.C., "Live Therapist Vs. Videotaped Therapist: Weight Control and Maintenance Through Behavior Modification," Doctoral Dissertation, The Graduate School, Tulane University, December, 1974, New Orleans, Louisiana.

Becker, H.C., Edisen, C.B., Edisen, B.S., Leeson, Jr., R.A., Luthringer, W.L.,"Behavioral Engineering: Therapeutic Effectiveness of Videotaped Therapist vs Live Therapist in Behavior Modification Weight Control Course," Proceedings of the 28th Annual Meeting of the ACEMB, September, 1975, New Orleans, La., 421.

PAPERS PRESENTED RECENTLY:

Becker, H.C., Jewell, J.F., "Subliminal Communication: One Year's Experience Using Videotaped Visual Subliminal Stimuli in a Behavior Modification Weight Control Program," Annual Fall Meeting American Physiological Society, August, 1976, Philadelphia, Pa.

Becker, H.C., Jewell, J.F., "Weight Control Through Behavioral Engineering: One Year's Experience Using Behavior Modification With Videotape Biofeedback and Subliminal Communication," 29th Annual Meeting of the ACEMB, November, 1976, Boston, Mass.

Becker, H.C., Jewell, J.F., "Weight Control Through Behavior Modification Using Videotape Feedback and Subliminal Communication," Annual Meeting of the American Society of Bariatric Physicians, October, 1976, Las Vegas, Nevada.

Becker, H.C., et al, "Video and Audio Signal Monitors/Processors for Subliminal Communication in Weight Control," 12th Annual Meeting of AAMI, March, 1977, San Francisco, California.

Becker, H.C., Jewell, J.F., "Weight Control Through Behavior Modification: Applied Communications Technology," IEEE Region 3 Conference, April, 1977, Williamsburg, Virginia

Becker, H.C., Glanzer, N.H.,"Subliminal Communication: Advances in Audiovisual Engineering Applications for Behavior Therapy and Education," IEEE Region 3 Conference, April, 1978, Atlanta, Georgia.

Becker, H.C., McDonagh, E.W., "Subliminal Communication (Subliminal Psychodynamic Activation) in Rehabilitative and Preventive Medicine," Ninth Annual Conference of Society for Computer Medicine, November, 1979, Atlanta.

Becker, H.C., Charbonnet, K.D., Marino, D.R., Steck, C.G., Warren, E.S., "Applications of Subliminal Video and Audio Stimuli in Therapeutic, Educational, Industrial, and Commercial Settings," presented to Eighth Annual Northeast Bioengineering Conference, M.I.T., March 27-28, 1980, Cambridge, Mass.

K. SCIENTIFIC EXHIBITS:

Heath, R.G., Becker, H.C., Peacock, S.M., Jr., Llewellyn, R.C., Founds, W.L., Jr., Miller, W.H., "Some Aspects of Subcortical Studies in Man," Transactions of the American Neurological Association, 1953.

Becker, H.C., Heath, R.G., "Some Aspects of Stimulus Artifact Elimination in Simultaneous Electrical Stimulation and Recording," Presented to the 8th Annual Meeting of the American Academy of Neurology, St. Louis, Missouri, April 23-28, 1956.

Nice, C.M., Jr., Meyers, P.H., Becker, H.C., Meckstroth, G.R., "Programmed Instruction in Radiology at Tulane University School of Medicine," presented to Radiological Society of North America, Chicago, Illinois, December, 1964.

Becker, H.C., Meyers, P.H., Nice, C.M., Jr., Meckstroth, G.R., "Cardio-pulmonary X-Ray Synchronizer, Model 1," exhibited to the Sixth International Conference on Medical Electronics and Biological Engineering, Tokyo, Japan, August 22-27, 1965.

Becker, H.C., Meyers, P.H., Nice. C.M., Jr., Meckstroth, G.R., "Cardio-pulmonary X-Ray Synchronizer, Model 1" exhibited to XI International Congress of Radiology, Rome, Italy, September 22-28, 1965.

Becker, H.C., Meyers, P.H., Nice, C.M., Jr., Meckstroth, G.R., "Cardio-pulmonary X-Ray Synchronizer--Model 2 (Miniaturized)," exhibited to the Annual Meeting of the Radiological Society of North America, Chicago, Illinois, November 28-December 3, 1965.

Becker, H.C., Edisen, C.B., Edisen, B.S., Leeson, R.A., Jr., Luthringer, W.L., "Behavioral Engineering: Therapeutic Effectiveness of Videotaped Therapist vs Live Therapist in Behavior Modification Weight Control Course," exhibited to the 28th Annual Conference on Engineering in Medicine and Biology, New Orleans, Louisiana, September 20-24, 1975.

Becker, H.C., Jewell, J.F., "Weight Control Through Behavioral Engineering: One-Year's Experience Using Behavior Modification With Videotape Biofeedback and Subliminal Communication," exhibited to the 29th Annual Conference on Engineering in Medicine and Biology, Boston, Massachusetts, November 6-10, 1976.

Becker, H.C., Jewell, J.F., Alito, P.N., "Video and Audio Signal Monitors/Processors for Subliminal Communication in Weight Control," exhibited to the 12th Annual Meeting of the Association for the Advancement of Medical Instrumentation, San Francisco, California, March 13-17, 1977.

Becker, H.C., et al.,"Innovative Technology in Weight Control," exhibited to the New Orleans Dental Conference, New Orleans, Louisiana, September 16, 1978.

Becker, H.C., et al.,"New Subliminal Processors for Therapy, Industry & Education," exhibited to the 33rd Annual Conference on Engineering in Medicine and Biology, Washington, D.C., September 30-October 3, 1980.

Becker, H.C., et al., "Subliminal Communication and Hypnosis," Poster Session Presentation to American Society of Clinical Hypnosis 25th Annual Scientific Meeting, Denver, CO, October 24-30, 1982.

L. LIST OF RESEARCH GRANTS WRITTEN PRINCIPALLY BY H. C. BECKER AND ACTIVATED AT TULANE UNIVERSITY, 1964 THROUGH 1974:

	Approximate Amount (Incl. Direct and Indirect Costs)
"Computer Analysis of Medical Radiographic Images," from NIGMS, for three years.....	$430,000
"Analysis of Radiographs Using Laser Coherent Optics and Other Methods," from the John A. Hartford Foundation, for four years.....	250,000
"Analysis of Radiographs Using Laser Coherent Optics," from the Edward G. Schlieder Educational Foundation, for three years.....	170,000
"Audiovisual Lecture Demonstrations in Radiology and Radiologic Techniques: Via Videotape and Live Productions for Continuing Education of Physicians and Technologists," from the Louisiana Regional Medical Program, for one year.....	27,000
Various "Institutional Faculty Grant-In-Aid of Research" Awards, through Tulane Medical School from NIH, each for one year, totalling approximately.....	17,000
"X-Ray Microtomography of Various Organ Systems," from the National Cancer Institute, for one year	42,000
TOTAL Amount Awarded (1964-1974).....	$936,000

Mr. GLICKMAN. Why don't you do that. Then we will let Mr. Tyler talk and then ask some questions.

Dr. BECKER. May I just say this, please. I am sorry. I have a statement from Dr. McPhilamy and his group saying what he is doing and why he thinks subliminals are going to be very useful in therapeutic substance abuse approach, and from Dr. Budzynski's group in Denver, stating the same kind of thing about his tapes, and from Mr. Larry Connor, who is a security expert and an innovator in anti-shoplifting and theft deterrent schemes.

Mr. GLICKMAN. If you would leave them for the record.

[The information follows:]

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englewood, colorado 80111
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Statement on Applied Subliminal Technology

In response to the request for information for the U.S. House of Representatives Committee on Science and Technology hearing on subliminal communication technology - -

I have been developing subliminal tapes for clinical purposes for seven years. These cassette tapes are used in our clinic to augment such therapy procedures as biofeedback, hypnosis and relaxation training. Moreover, most clients opt to use them at home as well.

Although the data are anecdotal, my strong impression gained from this large group of clients is that subliminal process shortens the duration of therapy required. Clients report feeling more relaxed, confident and in-control after tape usage. These cassettes feature the music of Steven Halpern mixed with a pleasant ocean background. Themes include Pain Relief, Self-Esteem, Coping With Stress, and Relaxation/ Handwarming.

More recently (for the last ten months) we have used a unique subliminal videotape (produced by Videophonic Enterprises) to further enhance therapy progress. The videotape features a beautiful slowly revolving kaleidoscope with a stereo audio track of an ocean sound and the original music of Steven Hering. The subliminal messaging, both audio and video, contains self-esteem, relaxation and self-confidence suggestions. The viewing of this video, even for 5 minutes, produces a feeling of peaceful, safe relaxation. It is used with each client at least once a week.

All clients are informed as to the general content of the tapes before they use them.

In summary, I believe that the use of positive subliminal suggestions can significantly enhance therapeutic progress.

Thomas H. Budzynski, Ph.D
Clinical Director

Thomas H. Budzynski 5/2/84

thomas h. budzynski, phd
richard c. leete, md
kirk e. peffer, phd
william r. saefveit, cpa

To: Dr. Hal C. Becker 8-7-84
From: Dr. Wm. P. McPhilamy

Dr. William P. McPhilamy, Silas Steele, and sons are a group of management consultants who specialize in alcohol, substance abuse, motivation, self-esteem and need fulfillment.

Being in the post-production phase of their seminar, sublimimal communication, both audio and video, will be employed to reinforce their already successful methodology, which is based on hundreds of case studies with a recidivism rate of less than 5% over a 2 year period.

It is our belief that some kind of Self-regulatory National Society should be formed by the professionals who are presently involved in responsible uses of Subliminal Communication.

KEEP WATCHING

by
LARRY CONNER

SERIES 2, ISSUE 5 • Subscription fee $65.00

SUBLIMINAL MESSAGES -PART 1

Some years ago, researchers at Tulane University's Laboratory of Clinical and Behavioral Engineering began experimenting with subliminal messages. The messages were played on cassette tapes through the music system of a store at 30 to 40 decibels below the volume of the music and below the conscious level of hearing.

The objective of a subliminal message is to influence behavior. The theory inside the store, calls for a positive reinforcing message to be delivered below the conscious level of hearing on a repetitive basis with the intent to influence a person who has a predisposition toward honesty to refrain from stealing. The use of subliminal stimuli to influence a variety of behavior is not new. During the past 25 years, thousands of universities and research institutions have studied the phenomena of subliminal perception. There are strong indications that this type of communication can reinforce preexisting value systems such as honesty. The unique feature of the research by the people from Tulane was the application of the principle inside a store. Actually 9 large stores were used in the test which lasted 9 months. The researchers used prototype equipment to deliver the subliminal message and at the end of the test reported a 37% reduction in shrinkage.

The results of the test were released to the public but unfortunately the remarkable accomplishment in shrinkage reduction was overshadowed in controversy. The media immediately focused upon mind control and invasion of privacy. The word "subliminal" took on a sinister connotation. This unfortunate introductory episode has retarded the fair and impartial evaluation of the technology as a potentially viable force to prevent stealing in stores. The time has come to begin the long overdue task of evaluating the subliminal approach in a calm and rational manner. Anyone with tenure in the retail business will surely recall the adverse reaction to the introduction of both closed circuit television systems (CCTV) and electronic article surveillance systems (EAS). Only a few years ago there was near unanimous resistance on the part of merchants against electronic surveillance devices. Today these systems are becoming an acceptable method of operation. When it comes to new concepts in store security, the unwillingness of the merchant to repond quickly is exceeded only by the historic ineptness of innovators to establish good, initial communication with both the retailers and the media. We should not, therefore, be surprised that the subliminal concept has been forced to run the gamut of unacceptability.

DETERRING THE THEFT

There are two methods that can be used to deal with stealing inside a store. The first approach is to discourage people from stealing, thereby preventing the theft from occurring. The second method is to catch the person after the theft occurs and then recover the money or merchandise. Both CCTV and EAS are offered to retailers as two-dimensional systems. The primary function is to detect a theft in progress and their secondary function is to act as a deterrent by preventing the theft before it occurs. Subliminal message systems are one-dimensional, focusing entirely on the deterrent approach. Regardless of the system involved, it is always far better to discourage someone from stealing than it is to catch them after the theft. Catching a thief in a store is a time-consuming, expensive event which always carries with it the potential for a hazardous situation or a law suit.

It is, however, easier to evaluate the effectiveness of a system designed to catch thieves. One simply tabulates the number of apprehensions, totals up the dollar value of the merchandise recovered and weighs these factors against the cost of purchasing, maintaining and operating the system. It is, on the other hand, much more difficult to measure the number of times a theft is not committed. This intangibility also provides those who may have something to benefit with the opportunity to claim they have the potential to deter thefts. In this connection, I have never seen any substantive evidence produced by the CCTV and EAS industries that would convince me their systems actually discourage people from stealing. This same difficulty will exist with any effort to evaluate subliminal message systems.

TRIAL BY INNUENDO

The subliminal message industry claims they have found a feasible solution. It is time to examine these claims and analyze the other aspects of using subliminal systems in retail stores. There are no laws prohibiting the use of subliminal messages in retail establishments. It is not an illegal nor an improper act. Quite the contrary, retailers should be commended for any use of a dignified, positive reinforcing message designed to keep customers and employees from becoming involved in a crime. In addition, it should be noted that the invasion of privacy charges, commonly associated with subliminal messages, have never been founded upon even a single transgression occuring in a store. The resulting public hostility was based upon fiction and we were, quite frankly, exposed to a "scaremonger's dream" that played upon myth and superstition.

The unfortunate part of this scare scenario is that no one challenged the illusion created in the media. No one insisted upon a balance of facts that weighed the potential economic and humanitarian benefits against the alleged fictional abuse. Let us not forget that the subliminal concept was not hatched by some crackpot in a back alley. The technology evolved as a result of respectable researchers reporting what they considered to be factual results. If subliminal messages work, then the operating costs in stores can be substantially reduced which, in turn, will hold down prices. Thousands, perhaps millions, of otherwiae honest people and their families may be saved the trauma which accompanies arrest and prosecution. Police departments and courts throughout the country might be relieved of a great burden and this deliverance could surely benefit beleaguered taxpayers.

OVERDUE EVALUATION

Some time ago, I attended a workshop on subliminal messages. I did not leave this session convinced that subliminal messages would do all that the moderator claimed. I left somewhat skeptical but I also left angry because I realized that over the years I had become the victim of a lot of "media hype" which destroyed my objectivity. I have corrected that oversight and I feel the retail community has much to gain by thoroughly examining the subliminal message concept. The retailers equivalent of the quest for the "Golden Fleece" should be the search for all appropriate methods to discourage theft inside the store.

In the next issue I will explain the results of a personally conducted experiment involving a subliminal message. I will point out what I consider to be the strong and weak points of the subliminal approach.

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KEEP WATCHING

by
LARRY CONNER

SERIES 2, ISSUE 6 • Subscription fee $65.00

SUBLIMINAL MESSAGES -PART 2

I felt uneasy dealing with a subliminal medium which I could not hear, see, smell, touch or taste. With the help of my son who works in a professional sound studio, I concocted an experiment. I had him prepare 5 audio cassette tapes. Each contained a message telling me that it was important that I get up at a specific hour in the morning. Each tape repeated a message which said, "You must get up tomorrow morning at exactly - 6AM - 6:30AM - 7AM - 7:30AM - or 8:30AM. Each tape was numbered so I could not tell in advance what time the message called for me to arise in the morning. A recorder was set up in my bedroom that would play for exactly 15 minutes and then shut off. The message delivered to me during this time was sent out at 25 decibels below the conscious level of hearing. No matter how hard I tried, or how closely I listened, I could not hear the message.

Over the past 20 years, I have been using my mind as an alarm clock. If I want to get up a certain time in the morning, I just think about it before I go to sleep and I will wake up within a few minutes of the selected time. My system is very accurate although it will foul up occasionally because of medication, exhaustion or a change in time zones. Under normal conditions, however, my system has proven to be very dependable over a prolonged period of time. We decided to challenge this durable system with subliminal messages. We conducted a 5 day test, during which time I set my mental alarm clock for 8AM. Four out of five times, the subliminal message overrode my normally, effective, conscious message to get up at a specific time. On 4 occasions, I did not get up at the 8AM time I consciously selected the night before, but I did awake within 3 minutes of the time called for in the subliminal message. The one failure occurred on the subliminal message that called for me to get up at 8:30AM. On this occasion, my conscious message got me up at 1 minute before 8. This experiment does not prove it is possible to modify the behavior of a potential thief inside a store using a subliminal message. My experience did, however, convince me to proceed with less skepticism and give greater credence to the claims of the proponents of subliminal messages.

DEFINING THE BEHAVIORAL RESPONSE

On the whole, the subliminal industry claims shrinkage reduction success around 30 to 40%. I cannot verify these claims because the stores that use these systems appear determined to avoid all publicity. In addition, the companies that manufacture and market subliminal messages and equipment, also keep secret the exact wording of the subliminal message being delivered at the store level.

This secret approach involving messages must never extend to the participating retailers. No one in store management should ever install a subliminal message system without being fully aware of every word in the message. I was unable to review the exact wording of subliminal messages put out by each company. I was, however, able to examine the methodology of the behavioral approach used by the companies involved. The object is to deliver a reinforcing message through subliminal modality to prevent theft by those employees and customers who have a predisposition for honesty. Based on this concept, professional thieves would not be affected because they have a predisposition to steal. Likewise, kleptomaniacs have a predisposition to steal based on a psychopathological illness. Habitual shoplifters form a compulsion or a predisposition to steal based on repetition. Occasional shoplifters have no predisposition to steal but they are only responsible for 20% of all shoplifted merchandise.

I have been involved in almost all of the research designed to evaluate and influence the behavior of shoplifters. Extensive testing has proven the effectiveness of a number of things designed to transmit an inaudible subliminal message to a shoplifter. There was nothing mysterious about what we did. One example is as simple as a clerk repeatedly staring at a suspected shoplifter. There is no verbal communication, nothing is said, but a message is transmitted and received. This situation will almost invariably deter or abort a theft and it succeeds without regard to any predisposition on the part of a shoplifter. Based on what I have seen, I do not think the proponents of subliminal messages know very much about the behavioral responses of shoplifters inside a store. I also do not have much confidence in the effectiveness of the reinforcing messages presently being used in subliminal systems. I am not disputing the technological capability to transmit an audio message that can be perceived subliminally. In addition, I am not challenging the success stories reported from subliminal use inside stores.

I am, however, drawing two conclusions based on factual research and empiricism. First, I feel that any success attributed to subliminal messages has come from reduced employee theft rather than decreased shoplifting. Second, I believe the subliminal messages presently being used can be modified to conform with the things which we now know influence the behavior of shoplifters inside stores. In this event, a whole new dimension can be added to this deterrent approach.

SUMMARY

I could only find three companies that provide subliminal systems to retail stores. Two of them - Midwest Research and The Viaticus Group use the traditional approach of recording their subliminal messages on a cassette tape and this message is then delivered through the store's sound system simultaneously with music. Contacts with these companies can be made as follows: Midwest Research, Inc., 6515 Highland Rd., Suite 211C, Pontiac, Michigan 48054. The Viaticus Group P.O. Box 8267, Cranston, R.I. 02920.

The third company is called Proactive and its equipment differs from the other companies. This equipment requires no employee monitoring. It uses the existing speakers in a store but it is not tied in with the music which means it operates continuously even though the music is not playing. The subliminal message in this system is produced through electronic chips instead of an audio tape. The manufacturer claims this is more reliable and, in addition, elimates charges that the retailer may have tampered with the message. For information, contact Proactive Systems, Inc. 4000 SE International Way, Building 204, Milwaukie, Oregon 97222.

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Mr. GLICKMAN. Mr. Tyler, why don't you go ahead.

Mr. TYLER. Thank you, Mr. Chairman.

Proactive Systems, Inc., is a Portland, OR, based company which manufactures a patented subliminal audio messaging system. The system was patented about a year ago.

Our product is a little different than what was described in the opening remarks. We present an audio subliminal message in a room independent of any carrier. We don't use slides, movies, background music.

We raise and lower the volume of our message adjusted to changes in the noise level in the room. As the noise level gets louder, we get quieter, quieter and quieter, floating the message at near or below threshold level of hearing. That is threshold for somebody with good hearing.

Obviously, threshold levels do change. We produce two types of systems, a subliminal messaging system which does present an audio subliminal message and a verifiable messaging system of which there are now only two installed.

The verifiable messaging system, our new product, presents an audio message which can be heard if you stop to listen to it and cannot be heard if you are not listening for it. It is a subconscious reinforcement device, but not subliminal in the conventional definition, in that it is possible to tell what the message is.

We have been active primarily in the retail theft prevention market over the last 3 years.

The national marketing of this product has been going on since October. We chose the retail market place because we sell the product as really a win-win situation. If it can be used to reduce theft in retail stores, it is preventing customers from being arrested, it is preventing employees from being arrested and fired, and in today's retail market place what we hear from our clients is that reduction in theft, that terrible component that a retailer must bear, about 5 cents on the dollar or $250 for every family, can mean a lowering of prices.

Obviously with the price competition faced, if one store doesn't have to bear the components of theft, 5 percent, sometimes more, they can lower prices to consumers and maintain the same margins, increase market share.

We have been involved in other additional research applications but only in a research mode. We have not offered products for sale in any additional application.

Some of the areas we have been involved in with our product have been basically research studies in the University of Washington on messagings, what works, what doesn't work, what kinds of messages are effective.

There are several systems that we loan. We have also, as Dr. Becker mentioned, we have what we call the first-born male child lease. When we do put a system out on lease, we don't sell them, they have very tight prohibitions on what they can and cannot be used for.

We have loaned systems to the University of Washington, we have loaned systems to a resident treatment school for emotionally disturbed kids used for self-esteem enhancement, we are loaning

systems to a medical center in Portland, OR, for several applications—two of their four cardiac recovery rooms.

They have four ICU's for open heart surgery patients. We are going to do two of those rooms, pending a meeting next week for the final approval, that will work in pain management, trying to reduce pain following open heart surgery.

Mr. GLICKMAN. Tell me about that. What actually happens? You have a couple of patients in there with tubes running through their bodies.

Mr. TYLER. As in all cases where we have the system used for anything other than theft prevention, it is full disclosure. The patient will sign a disclosure statement agreeing to being subjected to the experimental treatment.

There would be a speaker located above the hospital bed with a microphone as well. Somebody visiting the patient would be able to hear the message, they are closer to the speaker.

The patient laying in the bed will not be able to hear it.

The double-blind conditions are a little shaky, in that they can tell the patient that the message is there. It would be a better test if there was no way for the patient to know.

Mr. GLICKMAN. What is the message?

Mr. TYLER. They are working on that now. It will probably be more along the lines of an encouragement message, that they are getting stronger, and they are feeling better.

One of the problems of open heart surgery is depression which follows, and pain is real and pain exists, but your management of it is a variable depending on physical condition and your emotional condition.

What the doctors there are trying to get at is the emotional response to the situation they are in. Also, one of the systems will be in theory installed in a third room, or it won't really be there.

Again, it is kind of a double-blind test. So it is one example of some of the work we are doing.

Mr. GLICKMAN. The patient cannot hear this encouragement audibly?

Mr. TYLER. Right. But someone standing up could. Subliminal messages in audio work on a threshold level.

The closer you are to the speaker, the more likely you will be hearing it. Because someone standing up is 3-feet higher in the air than the patient, they will probably be able to hear it. The patient will not. Sitting up there may be times when they can.

We do have a system placed in a stockbrokers firm, one going into a chemical company, again, with full disclosure, for stress management. We are loaning a system to a hyperactive children program in Oregon, in a medical center. It would be again done under double-blind conditions where the kids would be exposed in their particular room.

Our philosophy on the research has been that this product has a great deal of potential to be of assistance in the medical area, not necessarily with direct medical treatment, but working more with self-esteem enhancement.

At the same time, however, we really don't know a lot about what this potential is beyond theft reduction. In the theft reduction applications we have had now, along with stretching back 2½

years, we have seen theft reductions ranging from nothing in a store that would only measure arrests to a 100 percent in a chain which had very good numbers.

I have problems accepting that. But we normally achieve a 30- to 50-percent reduction in theft.

Mr. GLICKMAN. How many stores have you been able to test this in?

Mr. TYLER. The written testimony is a little outdated. It says 40. We are in about 50 now.

We will have 50 by the end of the month.

Mr. GLICKMAN. Fifty different types of stores?

Mr. TYLER. Department stores, clothing, grocery, drug. Not record stores yet.

Mr. GLICKMAN. Around the country or in certain regions?

Mr. TYLER. Around the country, but mostly on the west coast.

Mr. GLICKMAN. Again, these are audio devices where some sort of audio message is being broadcast—what—at the same time MUZAK is coming out?

[See appendix for clarification.]

Mr. TYLER. It can be at the same time or without it. Our system works independently of background music. You can turn off the music and we are still there. It operates 24 hours a day.

Mr. GLICKMAN. What does the message say?

Mr. TYLER. We have two messages. One for our verifiable system, which anybody can listen to, says "be honest, don't steal, we arrest shoplifters," and we are switching most of them over to that now.

The older message is "I am honest, I do not steal." A very basic simple message. What we are trying to do is get a few words through, "honest" and "don't steal." From our research and the research that has been done for us, we don't believe that sentence works very well in terms of presenting subliminal messages.

We don't believe brief exposures work very well; we don't believe you can make people do things they don't want to do; we don't think we can stop somebody who walks in a store intending to steal.

But someone standing in the store, thinking about stealing, trying to decide whether or not they are going to do it, that we can use it to help push them the other way with a message which maybe makes them a little nervous because of the "don't steal" application or reinforces a sense of honesty.

Mr. GLICKMAN. And again you mentioned the word "verifiable." What do you mean by that?

Mr. TYLER. To us, and I was going to get into that next on our corporate philosophy, we have something patented, we will have it for the next 15 years, that we think has a great deal of benefit to society. Medical uses, educational uses and theft prevention.

At the same time, however, we don't believe really in the secret use of subliminal messages. We will tolerate it for theft prevention, because we think preventing a crime is a different issue. And a lot of things happen for crime prevention that we do tolerate because of it.

But for any other application, we require disclosure that a message is in place. To our way of thinking, it is not good enough to

put a sign on the door saying we are using subliminal messages here to keep you from falling down in a warehouse, for instance.

That the public and the people subjected to the message would be nervous about that, because you have to trust somebody. That for a subliminal message to be marketable and also to answer our own ethical concerns about it, there has to be a way to personally verify what the message is.

So with our verifiable messaging system, you can walk into a store or warehouse or hospital and stand under the speaker and listen for the message and here it. The message is there and it is audible if you decide to focus and pay attention to it.

If you are not focusing, if you are not paying attention to it and standing under the speaker, you are not going to hear it. We are offering the verifiable system for all other applications, for any other applications we require disclosure, and we would hope within a year our theft preventions systems would be verifiable as well.

We have had one installed for 2 months now.

Mr. GLICKMAN. Do you think the technology of this technique is such that you could begin to compel people to do things they don't want to do?

Mr. TYLER. There has never been any evidence that it will do that. The University of Washington has done some things with anxiety levels on measuring how anxious people may be to response of words. Some words can create higher anxiety levels.

All the indications are, no, you cannot use it to make somebody do something they don't want to do. All it can be used for is reinforcement.

We think it is even more basic than that. You cannot get specific with it. It could not be used to sell corn flakes if you wanted to. Perhaps it can be used to make somebody hungry in a grocery store, an application we would not approve of.

We have no evidence of it. If you do continue with this process in looking at subliminal messaging, I would suggest there is tremendous potential here for benefit. What we still don't know really is how effective can it be.

If we are achieving greater than 50-percent reduction and we do that quite often, it is a substantial impact on the retail store, we think it is coming primarily from employee theft and regular customers rather than from somebody who walks in and walks out.

But there is still a great deal to be learned as to how much benefit the system can do in other applications. To continue, we share the concerns about making sure that our product is tamperproof and not abused.

After it leaves our production facility, how do we maintain control of the product? We lease it exclusively. We do not sell. Our messages are on chips, not tape.

The chips are programmed in a proprietary manner by us. Certainly an electric engineer could find a way around the messaging with a great deal of time and money. There is also the self-regulating aspect.

A retail store that tries to make people hungry or sell corn flakes is asking for a great deal of abuse, from the customers, their employees, from the unions, the press and the public. That if we were to find another company involved in those kinds of applica-

tions, the best defense for my company would be to see they were exposed in their uses.

Mr. GLICKMAN. That is true to the extent that you find out about it. That was my question both to the FCC and will be both to you and Dr. Becker.

There is no, so to speak, automatic sensing device to find out whether subliminal techniques are being used in any kind of, like a geiger counter. I assume that if you go up and listen closely and you are experienced in it, you might know.

Maybe there are some techniques you don't know anything about yet.

Mr. TYLER. There are ways to detect our system. We have to build a detection device that if you play it in a store, it will bring our message up to an audible level.

This was actually a week ago. We have been working on it for a long period of time. It had been suggested by one retailer from national department store chain that eventualy not for legal reason but for public relations reasons the retailers may move to a certain fix program through, say, the better business bureau or some other organization that would certify systems on an occasional and random basis on inspection, because, again, there is that issue of secret use of subliminals which we again do not approve of.

But the tradeoff of crime prevention as an example where we do tolerate things that are in the public good to prevent a crime.

For instance, retail stores, they have people that watch the rest rooms, to prevent sexual abuse of children in the rest rooms. It is not something they like to talk about.

But it is something that I support and I am pleased occurs in the stores.

To finish, then, to conclude, we also have the development of a personal unit, a small unit, about the size of a large paperback book, that can sit on your desk and talk to you in a subliminal manner. It is our expectation in the future as we do become more involved in other applications on a nonsecret basis, the personal unit will offer a way somewhat around some of the ethical considerations, in that the individuals himself or herself will control that, say, in the volume levels.

Use in that application, or that method, offers a whole wide range of possibilities for prescription use, subliminal messaging, say, in the treatment of alcoholism for self esteem enhancement after they leave the treatment program.

So down the road there are other future developments of subliminals which can be of great benefit with less controversy as well.

[The prepared statement of Mr. Tyler follows:]

WRITTEN TESTIMONY

DAVID L. TYLER, PRESIDENT

PROACTIVE SYSTEMS, INC.

AUGUST 6, 1984

BIOGRAPHY - DAVID L. TYLER

DAVID TYLER IS CO-FOUNDER AND PRESIDENT OF PROACTIVE SYSTEMS, INC., A PORTLAND, OREGON ELECTRONICS MANUFACTURER. HE IS CO-PATENT HOLDER FOR THE PROACTIVE MESSAGING SYSTEM, A SYSTEM FOR PRESENTING AUDIO SUBLIMINAL MESSAGES.

THE SYSTEM WAS THE TOPIC OF DAVID TYLER'S HONORS COLLEGE THESIS FOR HIS BA FROM THE UNIVERSITY OF OREGON IN JUNE, 1979.

PROACTIVE HISTORY

The Proactive concept is an outgrowth of David L. Tyler's College Thesis. Research began in 1979 through a partnership formed by Mr. Tyler and Rene R. Lundy. Initial systems were installed in late 1981 in a Northwest store chain and showed an indicated reduction in retail theft of 35 percent. In July, 1983, a United States patent was granted covering all circuitry and generic claims.

CURRENT STATUS

Over 40 Messaging Systems are on lease or on order to date. Results in retail shortage reduction average 30 to 50%. Clients include supermarkets, clothing stores, off-price retailers, discount chains, and general merchandise chains. Client size ranges from independent operators to very large multi-state chains.

The Company is conducting development work on future applications of the Proactive technology. A rich base of academic research, including over 2,000 published studies, indicates many additional application areas. Large markets for medical uses such as pain management, weight loss, and alcoholism treatment are anticipated. Other application areas include motivation in education and sales, physical therapy, and stress reduction. All these applications have been tested to some extent.

BUSINESS DESCRIPTION

Proactive Systems, Inc. markets a patented in-store broadcast system for reducing theft in retail stores. The Proactive Messaging System broadcasts Honesty Reinforcement messages at a subliminal level. Customers and employees are deterred from stealing. Results over the last two years show 30 to 80% reductions in theft, and a bottom line savings to retailers of $1,200 to $10,000 per month per store.

Proactive's unique and newly patented method of presenting audio subliminal messages is the most important technical advance in subliminals in 25 years. For the first time, subliminal messaging is effectively taken out of the laboratory for commercial application.

A subliminal message, either visual or audio, is received subconsciously. The subject is not consciously aware that the message has been stored. A message thus received can reinforce existing value systems, beliefs, or intentions. Proactive has confirmed this effect in over two years of theft prevention use, in sponsored medical research, and in sponsored academic studies.

THE PRODUCT

Proactive's technology delivers audio subliminal messages in an entirely new way. The Proactive concept is to adjust the volume level of subliminal messages to changes in ambient noise levels. The Messaging System uses sensor microphones to measure room noise levels (ambient), and adjusts the volume of the subliminal message to the increases and decreases of room noise levels. The message volume "floats" constantly, and remains at a predetermined number of decibels below ambient noise level. The message is delivered continually at the most effective level.

With this technology, an audio subliminal message can be installed in virtually any room. Current installations range from 100 square foot hospital rooms to 65,000 square foot retail stores. Constant and long-term exposure to messages is now achievable without consciously distracting the subject, as in the case of movies, headphones, or music.

Proactive offers two types of Messaging Systems:

SUBLIMINAL MESSAGING SYSTEM

Message volume is set at three to five decibels below conscious hearing threshold for individuals with relatively good hearing. Message volume floats up and down as ambient noise levels in the store change, always remaining just below threshold. The message is entirely undetectable at all times and is never consciously audible.

VERIFIABLE MESSAGING SYSTEM

Typically signs are posted at store entrances announcing the System. In the quietest areas of the store the message is slightly audible to someone standing under a speaker straining to hear the message. This System offers a distinct advantage. The message can be verified directly coming out of a ceiling speaker. Proactive is out of the secrecy business and retailers can be up front about the System.

CORPORATE PHILOSOPHY

Proactive Systems, Inc., has an ongoing policy of ethical restraint in the use of subliminals. As a leader in the introduction of the technology to the marketplace, the burden of fair and ethical dealings is upon us.

The Company's System is designed with a proprietary speech technology on digital chips as opposed to a tape deck. This precludes the change of messages without a large commitment of funds in reverse engineering. Further, Systems are leased only; thus preventing ownership from being transferred to another party.

Finally, Proactive will not install a system without the public's knowledge, unless it is to prevent a crime. The Company anticipates all crime prevention Systems will be non-secret within a year.

USE AND ABUSE OF SUBLIMINALS

After spending four years in development and study it would appear that subliminals are an effective and yet subtle tool. It is not possible to overcome a persons strong desires or goals. Trying to influence specific behavior is impossible. Subliminals may stop a basically honest person from stealing but will not stop a hardened thief. Because of this, Proactive believes the potential for abuse is greatly reduced. The economic and political necessity of self regulation prevents abuse. Retailers and others contemplating changing the message to suit their own whims face the prospect of public outcry, lawsuits and possible governmental intervention.

Responsible, thoughtful expansion of the use of subliminals into new areas has the potential to vastly improve many lives. Proactive has a prototype personal unit suitable for future use on prescription or in therapy.

Subliminal messaging has achieved laboratory success in many areas including:

Alcoholism
Anxiety Reduction
Athletic Performance
Fainting Reduction
Honesty Reinforcement
Job Performance
Learning Improvement
Memory Enhancement
Mental Illness
Motivation
Pain Management
Phobia Treatment
Self-esteem Enhancement
Smoking
Stress
Training
Theft Prevention
Weight Loss

Although over 2,000 studies have been conducted, subliminal perception is still viewed as primarily a laboratory tool. Until recently, the technology had not evolved to allow the use of subliminal techniques in practical applications.

POTENTIAL APPLICATIONS & RESEARCH

The potential applications of the Proactive Messaging System are indeed vast. Because the Proactive System presents audio subliminal messages so unobtrusively, it is suitable for application in any environment, ranging from home to office, hospitals, retail stores, prisons, and even outdoor areas.

TARGETED APPLICATIONS

The Company has identified nine general application areas we believe are the most promising in terms of effectiveness. They are:

1) Theft Prevention
2) Safety
3) Education
4) Stress Management
5) Alcoholism/Substance Abuse
6) Weight Control/Eating Disorders
7) Rehabilitation
8) Motivation
9) Athletic Performance

In the effort to provide a firm foundation for entering these new environments, Proactive Systems, Inc. is engaged in ongoing subliminal research.

The following research projects have been conducted, or are in development:

a) Four studies at the University of Washington on message design.

b) Systems on loan to a resident treatment center for emotionally disturbed adolescents, working with self-esteem enhancement.

c) Systems on loan to a commodities firm, retailer, and a manufacturing company, working with motivation and stress reduction.

d) Research by a clinical psychologist with patients measuring skin resistance response.

e) EEG research with message design in conjunction with epilepsy treatment.

f) System on loan to a cardiac care unit for pain management of open heart surgery patients.

g) System on loan to a medical center research program dealing with hyperactive children.

All testing is done with full disclosure prior to, or following the test.

REGULATORY NEEDS

Proactive has found no reason to believe that subliminals can harm or be made to harm exposed individuals. The company has found no abuse and a generally high level of responsibility in individuals involved in subliminal research. As dictated by these indications, no regulation is currently necessary.

If in future years abuses become apparent, Proactive Systems would take an active role in prohibiting such abuse. The use of signs stating and making public the presence of a subliminal message is a possible regulation the company would suggest at this time.

Unethical use of subliminal messaging would threaten the entire subliminal industry. As an act of self-preservation, as well as maintaining ethical standards, Proactive Systems, Inc., would hasten to report any discovered abuse of subliminal messaging. The subliminal companies make excellent policemen in that abuse by one company threatens all the others.

In conclusion, Proactive Systems, Inc., recognizes the possible concern that subliminals might be used in unethical ways, although we do not believe such use is effective. The company is dedicated to bringing subliminals into public awareness and to applying the technology for the benefit of society.

Mr. GLICKMAN. Let me ask you this question.

First of all, what is the extent of this business, the development of subliminal techniques? Is it a big growing business?

Of course, Dr. Becker, you say you are basically in the process of retiring in some aspects. But is it a growing industry?

Mr. TYLER. There has been—several companies sell subliminal tape systems. Typically they were selling self-hypnosis tapes. Now they carry a line of subliminal tapes, as well.

There is controversy as to whether or not that is an effective delivery method. Other companies involved have been a company which makes a device that plugs into a home computer and runs subliminal works on your TV screen.

Then there is a professor in Rhode Island that has a theft prevention system, I understand he has been marketing to a limited extent. So it is not a great ground swell of increase in marketing of subliminal products other than the tapes which are becoming more and more accepted.

If you walk into a book store you may find a rack of tapes that are by Potentials Unlimited that provide subliminal messages. So there is not a great deal.

Nobody has our technology, which is different than what has been done before, with the adjusting the threshold levels. It allows us to put it in, say, at the hospital without having music along to distract or be irritating.

Mr. GLICKMAN. To set the record straight, self-training tapes are not the same as subliminal tapes.

I mean, tapes—in the old days where you would put on a record and you went to sleep and woke up and you are fluent in Spanish, that is not what you are talking about.

Mr. TYLER. They are subliminal. A white noise generator, you hear the sound of ocean waves, and all you hear is that and the messages are underneath. Conceivably, those tapes could be used in general broadcast, broadcast in this room or another area.

There is some—again, not a whole lot—of research that can be effective unless somebody has it at a high volume perhaps with headphones on. So that is really the greatest use of subliminals today.

Mr. GLICKMAN. Dr. Becker, do you think this is a growing field?

Dr. BECKER. I agree with everything that Mr. Tyler has said. And he is more on top of what is happening right now in the field; 2 years ago I thought I was through with it, except for education training and therapeutic uses.

So I really have made no attempt to keep up with what is going on in the retail and industrial and commercial fields.

Mr. GLICKMAN. If you were a K-Mart store, would you consider this? Let me put it to you like this. Are the statistics pretty good in terms of the reduction of theft in stores where these devices are used?

Mr. TYLER. Most are. We avoided, but we will do a chain that doesn't have good numbers.

The hard part is the retailer can measure what is gone, but they don't know if it is paperwork, if it is employee theft, customer theft, because they track their prices up and down wrong.

So it is a difficult issue. Our numbers are very good from many chains and marginal for others. We have found, though, the chains with the best numbers give us the best results.

They are cleaner. There are a lot of things you can do to get good results—doing three stores, keeping the conditions the same, et cetera, et cetera, to assure we have the good results.

We have seen spotty results in other areas, such as reductions in bad checks and reductions in arrests. But they are spotty, they are not necessarily consistent, and there are reasons for that, too.

The security guard that arrested five people last month is probably going to arrest five people this month.

Mr. GLICKMAN. I want to repeat this question. Are either of you aware of any stores that use subliminal communication system to increase sales?

Dr. BECKER. I am not.

Mr. TYLER. We are not, either. Our systems are locked and inspected every 90 days on a random basis.

Mr. GLICKMAN. Any of your competitors that you mentioned, are they all in the same business that you are, or are you aware of any that might be——

Mr. TYLER. With Dr. Becker's retirement, we really don't have competitors for theft prevention, other than a few people that have some kind of dabbling in it. There are two companies we know of that try and market criminal theft prevention devices.

We get strange requests as well. A New York firm called us about a "vote no" message for a union election coming up. For our company, if we are——

Mr. GLICKMAN. Would you design such a message?

Mr. TYLER. Could we? That says "vote no." It would be easy to do.

Mr. GLICKMAN. Would it be effective?

Mr. TYLER. I don't think you can use it to make people do things they don't want to do. I think it has to be someone on the border line for us to even be effective with honesty reinforcement.

Mr. GLICKMAN. Given that most applications have not decided which way they are going to vote, particularly until the last few days, could you lead those people periodically into making a decision on how to vote because of a subliminal message.

Mr. TYLER. The evidence is unclear. Our belief is that you cannot do it that way. You cannot make people do things specifically either.

They did an experiment, if I recall, where they tried to make people buy turkey sandwiches. This is in a laboratory situation. They had a deli set up. They bought more meat sandwiches, but not more turkey.

In other words, they could not get specific with the message. We agree as well——

Mr. GLICKMAN. Let's say hypothetically that a message was flashed on TV during President Reagan's reelection commercials which said, "If you believe in home, family and motherhood, vote for President Reagan." And you know, that is a pretty general message that does not get to specific points on the nuclear freeze or the budget issues. Would that be a kind of a message that could be used subliminally to get people maybe to do things that they were not otherwise interested in doing?

Mr. TYLER. First, from our research with audio subliminals, they have to be repeated very, very frequently, because it is frequency and repetition that makes it effective. A brief exposure will not do much. There are other researchers that say we are wrong.

It is possible that it could be done if it was appealing to some kind of emotional impact. But I have no expertise in the visual area.

Mr. GLICKMAN. How about in the audio area?

Mr. TYLER. In the audio area, it would be very, very questionable if you are trying to get a lot of things through, you are not trying to get one word through. You could play the word "Reagan" or "Mondale," are you going to have an impact, are they going to make a value judgment on those words.

Again, the answer to the abuse question, there are things that may work. I believe an "I am hungry" message could work in a retail store.

But it is real hard to get specific. It is something that I think should be looked at in terms of what are the limits of this system that we have now that does play constantly. That is what we are looking for now. Find out how much we can do to be of assistance in the medical field.

Mr. GLICKMAN. Are you aware of any research the Defense Department has done in any of these areas?

Mr. TYLER. I am not. I understand that you are.

Dr. BECKER. I am not at liberty to answer that question, I am sorry.

Mr. TYLER. In the press there has been some indication. Mother Jones, some indication it has been done. We have never been contacted.

Mr. GLICKMAN. I had Army folks a couple of years ago give me a little course in something called neurolinguistic programming. But that is not the same thing as subliminal conditioning.

But it has some parallels in certain areas.

Mr. TYLER. For instance, our verifiable system where you hear it in a store. It is similar to turning the bakery fans inside the supermarket instead of outside, where there is a presence there, the smell of fresh bread, wherein you pay attention you can pick it up.

There are lots of things done subjectively to influence people. There has been the talk of print media, subliminals. I am not a big believer in it. I don't think it works.

I think the people that have found some of the things have a real creative imagination. But there have also been some cases where there are really visual subliminals planted in advertisements. I have seen those as well.

They are limited. There are not many real examples of it. Does it work? Real questionable.

Mr. GLICKMAN. How would you feel about regulation of subliminal communication to assure that the public is made aware of its use?

Mr. TYLER. Again, I don't think it should be used secretly except for crime prevention. I don't think it should be used on TV unless there is a way to verify what is there. It is like a closed caption, where you can turn it on and see what it is.

That is a different issue. Because there has been no indication of any injury from subliminals, because of the self-regulatory nature of it, I think, which is the people that use it, I don't see the need now.

But if there is the potential for abuse, evidence of abuse, what we would recommend is legislation requiring signs be posted that subliminals are in use, and therefore there be informed consent they are there.

It is our intention as I said before to even leave the secrecy business on crime prevention. But if it is a very powerful technology, if it can be used for the benefits of society, then in shaping legislation I think the first answer is what will it do, what kind of benefits does this product have that we don't want to have prohibited.

Mr. GLICKMAN. OK. Finally, I want to ask, how many businesses in this country, as far as you are aware, use subliminal communications generally, either for theft reduction—I may be talking about—whatever users, maybe hosts—theft prevention, motivation of employees, whatever purpose.

Mr. TYLER. We have on loan, when we loan a system for research, we charge them a dollar a year, and make them sign all the legal paperwork, we have systems on loan to two, now going to three for stress management.

We are going into two host programs, the one school system we have is out now, the testing is completed there. To our knowledge,

the competitors, if you will, with subliminal audio devices, we know of no one they have sold to. We know people they have made presentations to.

So it is a very limited basis, except for retail theft prevention of our 50 systems I would say—I don't have the exact number—maybe 20 clients, 22 clients, with multiple installations.

Mr. GLICKMAN. OK. Dr. Becker, I understand you have discussed the possibility of audio conditioning someday being as common as air-conditioning. What do you mean by audio conditioning, and is this some type of subliminal pep talk to motivate people?

Dr. BECKER. It could be. When we view systems like that, we always have gotten informed consent. They have never been used in a covert, or as Mr. Tyler calls it, a secret way. And I am sorry, I have lost the thrust of your question.

Mr. GLICKMAN. Some sort of subliminal pep talk?

Dr. BECKER. It is entirely possible. That is what Dr. Budzynski is doing in his 30-minute tape called "Kaleidoscope," principally aimed at corporate executives. It is self esteem and motivation.

I guess you could call that a pep talk. And Dr. McPhilamy has some of that same element in his substance abuse therapeutic cassettes.

Mr. GLICKMAN. OK. I want to thank you both.

Next we will hear from Dr. Howard Shevrin and Dr. Lloyd Silverman.

Dr. Shevrin, you work at my alma mater. I am glad to have you here.

STATEMENTS OF HOWARD SHEVRIN, PH.D., UNIVERSITY HOSPITAL, UNIVERSITY OF MICHIGAN; AND LLOYD H. SILVERMAN, PH.D. RESEARCH PSYCHOLOGIST, NEW YORK VETERANS ADMINISTRATION, NEW YORK REGIONAL OFFICE

Dr. SHEVRIN. Thank you.

Mr. GLICKMAN. I understand, Dr. Silverman, you do not have a written statement.

Dr. SILVERMAN. That is correct.

Mr. GLICKMAN. Why don't you go ahead. Do it informally, if you wish.

Dr. SHEVRIN. Congressional interest in the subject of subliminal perception is both timely and welcome. I am grateful for this opportunity to present to this committee my views on subliminal communication technology. I have been investigating the nature of subliminal perception for the past 30 years.

My research has dealt primarily with the emotional aspects of subliminal perception in the course of which I have demonstrated the existence of certain brain wave correlates of subliminal perception which I will discuss in greater detail later.

In addition to my research, I am a practicing psychotherapist who deals every day with the consequences of emotional disorder. I am, therefore, quite interested in any advances in psychotherapy.

In fact, some of my most recent research is concerned with using subliminal perception as a way to determine the effectiveness of different treatments, not to actually constitute a treatment.

As a scientist, psychotherapist, and private citizen, I am quite concerned with any effort to use subliminal perception as a treatment or as a means to control behavior for commercial or any other purposes. As I will note later, there exist sufficient grounds on which to be concerned about the public welfare in these respects.

Although scientific acceptance of subliminal perception is fairly recent and its principles are far from well established, application of these principles to the treatment of mental disorders and for commercial exploitation have already been made.

In view of these and other potential uses affecting the public, I will conclude my presentation with recommendations for legislative or regulatory consideration. I will first briefly characterize the current status of research in the field.

It has been a field marked by considerable controversy. Early controversy focused on the methodological limitations of these initial studies in a new and untried field; improvements in method followed in the subsequent 30 years.

The original findings, since replicated and supported by improved methods, showed that pictures or words flashed so quickly that the person could not report seeing them, nevertheless registered in the mind unconsciously and influenced consciousness without the person being aware of it.

Such unconscious influences could be detected in dreams, images, hypnotic states, or by subtle changes in the perception of conscious stimuli presented at the same time as the subliminal stimulus. Thus, a neutral face would be seen as angry or happy, depending on whether the word angry or happy had been flashed subliminally at the same time as the neutral face was being displayed.

The evidence also suggested that stimuli were responded to differently depending on whether they were subliminal or consciously perceived [supraliminal]. Subliminal stimuli appeared to undergo various distortions so they would become more unrealistic and less like the original stimulus.

It was as if when outside of awareness the stimulus was treated in a more dream-like way and appeared to be caught up in the person's inner preoccupations and fantasies. These findings are of special significance with respect to various applications of subliminal perception which assume that subliminal stimuli are reacted to as if they were supraliminal stimuli and are perceived realistically. Instead, it would appear that subliminal stimuli are responded to in quite idiosyncratic and private ways.

In more recent scientific research, essentially the scientific interest has broadened and deepened considerably since its early days, and in particularly, cognitive psychologists have been focusing on the problem of selective attention which many consider to be at the heart of all perception, memory, and thinking.

Without the capacity for selective attention, it would be, for example, impossible for me at this moment to organize my thoughts, select appropriate words, and direct my comments to this committee.

Nor would it be possible for you as an auditor to be able to hear what I am saying clearly and make sense of it. Selective attention is a vital mental capacity.

By investigating subliminal perception in conjunction with selective attention, cognitive psychologists have begun to study the nature of the relationship between conscious and unconscious processes, a problem of considerable importance to psychology and in understanding how the mind works, both consciously and unconsciously.

But things can go wrong with selective attention, especially when strong feelings and conflicts enter the picture. And I might adhere parenthetically that I was struck by one of the statements made previously, that the subliminal message is directed to people who may be in some conflict over whether to steal or not.

And I would like that to be borne in mind as I continue.

In my own work, I have shown that stimuli related to a person's emotional conflicts evoke a very different brain response subliminally and supraliminally than stimuli that are not emotionally disturbing for the person. This difference in brain response suggests that stimuli related to pathological emotional conflict produce an inhibition of selective attention for the meanings associated with these stimuli. Selective attention becomes too selective and there are pathological delays in consciousness.

In other words, there is a pathological effect of subliminal messages which tune in to the person's unconscious conflicts.

Mr. GLICKMAN. Could you perhaps give us an example of that?

Dr. SHEVRIN. Yes, let me show you these illustrations, if I may. And then I will explain it as I go along.

What I am going to show you next are really, they look like squiggles, and then I hope in my explanation they will begin to assume some significance to you.

What you have here are the brain responses of a young man suffering from a blood phobia, sufficiently strong so that he presented himself for treatment.

Mr. GLICKMAN. Blood phobia?

Dr. SHEVRIN. Yes. He was fearful of the idea of blood, in all of its various manifestations. Now, what we were able to do on the basis of a thorough clinical examination of this patient was to select out words that he had used in his description of what it felt like when he saw blood.

We then presented these words which actually appear on the left in the upper left there—keep in mind one in particularly, gory picture, which is toward the bottom of the list.

Mr. GLICKMAN. These are all negative words, horrifying, suffer.

Dr. SHEVRIN. Right. They are intended to reflect his experience, his conscious experience of what happens when he sees blood. These words are presented to him both subliminally, which is at the bottom, and supraliminally, which is at the top.

In other words, when the words were flashed supraliminally, they were presented so slowly that he could read off every one. Down below they were presented at a thousandth of a second and he could not see them at all, let alone tell if there was a word there.

Now, you will note—and bear with me as I explain these squiggles—that there is a real striking difference between the brain response up above and down below, that is consciously and subliminally. Namely, that the major effect is found much later.

You notice that the big peak in the upper curve occurs approximately a half a second after the stimulus is presented, which is down in the lower left hand corner of the first curve.

Whereas, when the same stimuli are presented so he could not tell what was being flashed, you start to get rather striking brain responses very early.

Now, other than if you presented the same subject a series of words which although they are unpleasant by most standards are not related to his conflict, you get a very different kind of brain response, both subliminally and supraliminally.

And let me show you that next. You will notice that the upper curve now, these are ordinary unpleasant words, not related to the patient's conflict now, that is his difficulty with the blood, and you will notice there is a very big response present supraliminally rather early.

Subliminally there is very little difference between these ordinary unpleasant words and the conflict related words. Now, if I were simply to superimpose the two curves that you have just seen, you will be able to see the difference I am talking about.

You will notice now that the big peak that occurs early on is the brain response to the ordinary unpleasant words, and that is much bigger than any response that occurs in the conflict related words.

It is only later on that the conflict related words related to the blood phobia show a striking increase in brain response.

In other words, we are interpreting this to mean that when you present words that are pathologically related to an individual's emotional difficulties, that the brain responds differently, when they are supraliminally, that he is presented consciously, and when they are presented subliminally or unconsciously.

I think we can turn that off. Thank you.

I would be happy to entertain a question or two, if this is not clear at this point.

Mr. GLICKMAN. You said you had some legislative recommendations.

Dr. SHEVRIN. Yes. I do have a few things that I would like to call to the attention of the committee.

Let me bring some of these comments to a close by referring to an important piece of Russian research which may not be too well known in this country, which is also demonstrated that emotionally loaded words presented subliminally result in distinctive brain responses.

Now, I stress this emotionally loaded for several reasons, both in terms of its significance with respect to treatment, and also with respect to the comments made earlier that indeed the shoplifter, the person who is in conflict over shoplifting is the one who will be affected by the message, not the professional thief or the person who has no conflict over it.

This is what I understood to be the gist of Mr. Tyler's comments.

This work by Kostandov and Arzumanov, 1977 is of special interest because it was conducted with people who had been accused of having committed violent crimes. These Russian investigators were able to show that words selected so that they related to details or crime only known to the alleged criminal evoked a different pattern of brain response when presented subliminally as compared to

supraliminally; this was not found to be the case for emotionally neutral words.

I might note at this point that when I spoke personally to Kostandov at a conference in Russia in 1979, he assured me that his subjects were all volunteers and had been guaranteed that any information obtained in the course of the experiments would not be used against them.

Let me pick this point up at a later pont now, as I am pressed for time.

I come to a final point, which in my judgment is of the greatest potential importance. My own brain research and that in particular of the Russian investigator Kostandov point directly to the potential use of subliminal stimulation as a lie detector test far more powerful than ones currently in use.

By using brain waves which occur within milliseconds of the stimulus presentation, there is very little time in which efforts at dissimulation or the continuing effects of general stress can influence the course of the response. Although Kostandov assured me in 1979 that his subjects were protected from police use of his findings, for how long can that guarantee last in a police state? But we, too, may shortly be confronted by the same problem: The use of brainwaves to reveal information customarily protected by the utmost privacy of one's inner thoughts.

Although this may sound like science fiction, we may be on the threshold of invading the individual's last stronghold of personal privacy—his own inner thoughts, and this is 1984.

Research is already under way aimed at breaking the electrophysiological code for language so that in time it may be possible to read off a person's thoughts from the pattern of brain waves picked up at the scalp, Chapman, et al, 1977, Chapman, et al, 1980. We already know from our research that emotionally meaningful words have different brain patterns; others have shown that verbs and nouns regardless of language have different brain patterns and furthermore that there are different brain patterns for true and false statements. So the horizon is opening up as far as basic research is concerned in the relationship between brain wave patterns and thought both subliminal and superliminal.

If we have witnessed considerable amount of application of some of the weaker findings from subliminal research over the past two or three decades, I hesitate to think what future applications might be if these kinds of findings are further advanced and I would assume as in all scientific fields that they will be advanced. It is only a matter of time.

I am quite concerned that findings of this sort, which are of fundamental scientific importance and which can ultimately be used to benefit mankind, could in the wrong hands be used for invasive and manipulative purposes. Let me say before continuing with some recommendations concerning the use of subliminal messages in treatment, of course under those circumstances the individual presumably has given consent and, therefore, there isn't the same ethical constraint as in the failure to disclose the message.

However, as a psychotherapist and as someone concerned with not simply quotes changing or manipulating behavior, but in helping the individual to increase his mastery of his own self and what

is wrong with him, I consider that approach to be ultimately self-defeating insofar as it would tend to be substituted for much more thorough going ways of producing change that would be in my judgment longer lasting.

Finally, let me close with several recommendations for the committee to consider. First, that basic research into the nature and power of subliminal stimulation be more fully supported than at present so that we can learn more about this important scientific area. I would stress that it is along with many more problems a matter of fundamental scientific importance, certainly in the social sciences and psychology.

Two, that both legislative and regulatory action be considered that would undertake to control (a) the commercial misuse of subliminal messages which may be detrimental to the public and is certainly unethical, and I failed to comment on one point that I consider to be important in this respect, that there is no way of knowing to be sure that a subliminal message piped through the Muzak or any other method may indeed not have a harmful effect, noxious effect, especially if it hits a person in the midst of some conflict of which he may for example not be fully aware.

No one will know what the effects are least of all the person so affected. But I would like to suggest that some of my own research would strongly indicate that indeed people in conflict, emotional conflict over some action that they would have in mind, like shop lifting, even though they not end up shop lifting may indeed be adversely affected by such stimuli, regardless of whether they acted or did not act. We have no way now of assessing that but I think it is a matter that should be kept in mind aside from the issue of privacy.

Second, the potential exploitation of subliminal perception and correlated brain waves for invasive and manipulative purposes.

Lastly, and this is the gist of what I would like to emphasize in presenting this to you, that in order to provide time for legislative and regulatory consideration of these complex scientific, legal and moral issues, that a moratorium of some sort be established for a number of years for all applications and commercializations of subliminal perception and that basic research be encouraged during this moratorium so that a scientific foundation would be provided for enlightened legislative and regulatory action.

I really would like to express my thanks to you, Mr. Chairman, for this opportunity to present my views on this important matter.

I took note of the fact today, I believe today is the anniversary of the dropping of the first bomb on Hiroshima which I visited not too long ago actually, and, well, there was a series of scientific discoveries into the nature of the atom which resulted in that first bomb being dropped and we still are trying to get that horrifying genie back into the bottle.

And I don't wish to exaggerate this but I think that the success with which brain wave research as I have tried to describe it to you today is meeting even in its infancy that there may be another genie in the bottle we better be very careful about letting out.

[The prepared statement of Dr. Shevrin follows:]

Subliminal Perception and Subliminal Communication Technology

Report prepared for Invited Testimony
before

Science and Technology Subcommittee on
Transportation, Aviation and Materials

August 6, 1984

Howard Shevrin, Ph.D.
University of Michigan

Congressional interest in the subject of subliminal perception is both timely and welcome. I am grateful for this opportunity to present to this Committee my views on Subliminal Communication Technology. I have been investigating the nature of subliminal perception for the past 30 years. My first study in the field was published in 1956; the most recent presentation of my research was this past July at a conference sponsored by the MacArthur Foundation on Emotional and Cognitive Factors in Unconscious Processes which took place at the Center for Advanced Study of the Behavioral Sciences at Stanford. This conference was attended by a number of people engaged in the study of subliminal perception. Currently I am a Professor of Psychology in the Departments of Psychiatry and Psychology at the University of Michigan. I am also Director of the Department of Psychiatry Psychotherapy Evaluation and Treatment Laboratory in which I continue to pursue research on subliminal perception. My research has dealt primarily with the emotional aspects of subliminal perception in the course of which I have demonstrated the existence of certain brain wave correlates of subliminal perception which I will discuss in greater detail later. In addition to my research, I am a

practicing psychotherapist who deals every day with the consequences of emotional disorder. I am therefore quite interested in any advances in psychotherapy. In fact, some of my most recent research is concerned with using subliminal perception as a way to determine the effectiveness of different treatments. As a scientist, psychotherapist, and private citizen, I am quite concerned with any effort to use subliminal perception as a treatment or as a means to control behavior for commercial or any other purposes. As I will note later, there exist sufficient grounds on which to be concerned about the public welfare in these respects.

Ever since its first investigation at the turn of the century in Germany (Urbantschitsch, 1907) and its further pursuit in Austria during World War I (Pötzl, 1917) subliminal perception has been dogged by scientific skepticism and controversy (see Fisher, 1960, for a review of this early work). It has only been in recent years that the phenomenon of subliminal perception has achieved fairly broad recognition within psychology and has been established as a bonafide area of research having significant contributions to make to our understanding of how the mind works in normal and abnormal states (Shevrin and Dickman, 1980). A recent thorough review of the literature (Dixon, 1981) has amply demonstrated that the phenomenon as such does indeed exist. Scientific controversy now extends to understanding how it works, what it tells us about the relationship between conscious and unconscious psychological processes, and its role in abnormal phenomena. Although scientific acceptance of subliminal perception is fairly recent and its principles

are far from well established, application of these principles to the treatment of mental disorders and for commercial exploitation have already been made. In view of these and other potential uses affecting the public, I will conclude my presentation with recommendations for legislative or regulatory consideration. I will first briefly characterize the current status of work in the field.

Current Status of Research

What do we mean by subliminal perception? Whenever a known stimulus (usually visual or auditory) is presented in such a way so that an individual can not consciously report its presence while revealing indirectly some knowledge of the nature of the stimulus, we can consider that subliminal perception has occurred. Subliminal perception was pioneered by a small group of psychologists and psychoanalytic investigators beginning in the 1950's. Several important research centers were primarily involved: Mt. Sinai Hospital of New York (Fisher, 1954, 1956), the Mental Health Research Center of New York University (Klein, 1956, 1959), and the Menninger Foundation in Topeka, Kansas (Luborsky and Shevrin, 1956; Shevrin and Luborsky, 1958). Interest at that time was narrowly limited to using the technique of subliminal perception to establish that mental processes existed outside of consciousness and could influence consciousness without the person being aware of it. Early controversy focused on the methodological limitations of these initial studies in a new and untried field; improvements in method followed in the subsequent thirty years. The

original findings, since replicated and supported by improved methods, showed that pictures or words flashed so quickly that the person could not report seeing them, nevertheless registered in the mind unconsciously and influenced consciousness without the person being aware of it. Such unconscious influences could be detected in dreams, images, hypnotic states, or by subtle changes in the perception of conscious stimuli presented at the same time as the subliminal stimulus. Thus, a neutral face would be seen as angry or happy, depending on whether the word angry or happy had been flashed subliminally at the same time as the neutral face was being displayed.* The evidence also suggested that stimuli were responded to differently depending on whether they were subliminal or consciously perceived (supraliminal). Subliminal stimuli appeared to undergo various distortions so they would become more unrealistic and less like the original stimulus. It was as if when outside of awareness the stimulus was treated in a more dream-like way and appeared to be caught up in the person's inner preoccupations and fantasies. These findings are of special significance with respect to various applications of subliminal perception which assume that subliminal stimuli are reacted to as if they were supraliminal stimuli and are perceived realistically. Instead, it would appear that subliminal stimuli are responded to in quite idiosyncratic and private ways.

Following these early studies containing methodological flaws and maintaining a relatively narrow focus, in recent years scientific

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* Findings of this kind were usually based on quite small experimental effects and were often difficult to replicate; very likely this difficulty is the result of great individual differences in subliminal effects.

interest in subliminal perception has broadened and deepened consideraly. In particular, the method has gained acceptance as a way of understanding certain classical problems in psychology such as selective attention which is at the heart of all perception, memory and thinking (Shevrin and Dickman, 1980). Without the capacity for selective attention it would, for example, be impossible for me at this moment to organize my thoughts, select appropriate words, and direct my comments to this Committee; nor would it be possible for you as auditors to be able to hear what I am saying clearly and make sense of it. Selective attention is a vital mental capacity. We become aware of its value when we suffer for whatever reason from distraction or anxiety. Subliminal perception research tells us that the stimuli being heard or seen under conditions of distraction or anxiety have in fact registered, although we may not become aware fully of what has registered. Our minds are always open to much more input from outside or inside us than we become aware of at any given moment; otherwise we could not function in a coherent, organized, task-oriented fashion. Subliminal perception has a direct bearing on how selective attention works. Selective attention is the gatekeeper organizing and directing the flow of subliminal registrations into consciousness. By investigating subliminal perception and selective attention, cognitive psychologists have begun to study the nature of the relationship between conscious and unconscious processes.

One interesting finding has emerged: When stimuli enter and remain subliminal (unconscious), they are more likely to be coded in many

different ways simultaneously as if the stimuli enter into a number of different filing systems at the same time; once the stimulus enters consciousness only one such code or file is available, usually determined by the task or interest prevailing at the time. We can shift our attention to other codes, or meanings, as they become relevant and they are readily available because they have already registered subliminally. We can see that subliminal perception is a remarkably valuable adaptive capacity because with it we can maintain a great deal of information on tap without being overwhelmed by it.

But things can go wrong with this nicely adaptive system, especially when strong feelings and conflicts enter the picture. In my own work, I have shown that stimuli related to a person's emotional conflicts evoke a very different brain response subliminally and supraliminally than stimuli that are not emotionally disturbing for the person. This difference in brain response suggests that stimuli related to pathological emotional conflict produce an inhibition of selective attention for the meanings associated with these stimuli. Selective attention becomes too selective and there are pathological delays in consciousness. In Fig. 1 you can see the brain waves from a young man suffering from a blood phobia. The upper wave was obtained when he was being shown words supraliminally which had been used by him previously to describe his phobia; the bottom wave was obtained when the same words were flashed at 1/1000th of a second subliminally so that he could not see them. You will note that there is much more early activity subliminally than supraliminally. On the other hand, in Fig. 2 are shown the brain waves obtained when

ordinary unpleasant words, not related to his phobia, were shown to him. You will note that there is quite a quick response supraliminally--no delay as with the pathological phobic words. The same phobic words have no such effect on the subject who does not suffer from the same phobia and emotional conflict (see Fig. 3). I stress this finding in order to show that subliminal stimuli must be quite specific for the particular individual; they must have meaning of a quite personal and idiosyncratic sort in order for these effects to be demonstrated. There do not appear to be any generally pathological words which would work for everybody. This finding would fit with what I mentioned before about the distortions effecting subliminal stimuli found in earlier research. Subliminal inputs are apparently experienced in highly personal, private and idiosyncratic ways related to the quite concrete details of the individual's history. The stimulus 'gory pictures' means something quite different to this particular blood phobia patient than it would to a normal person; and in fact, 'gory pictures' may mean something entirely different to two different blood phobia patients. One would have to know each person's particular history and the unique nature of his experience.

I will close this brief review of current research by citing an important piece of Russian work which has also demonstrated that emotionally loaded words presented subliminally result in distinctive brain responses. This work by Kostandov and Arzumanov (1977) is of special interest because it was conducted with people who had been accused of having committed violent crimes. These Russian investigators were able to show that words selected so that they related to details

of the crime only known to the alleged criminal evoked a different pattern of brain response when presented subliminally as compared to supraliminally; this was not found to be the case for emotionally neutral words. I might note at this point that when I spoke personally to Kostandov at a conference in Russia in 1979, he assured me that his subjects were all volunteers and had been guaranteed that any information obtained in the course of the experiments would not be used against them. To my knowledge, Kostandov has an excellent reputation as a scientist and I have no reason to doubt his word. I will return to the special problems posed by this Russian research and my own research on brain response correlates of subliminal perception. Let me now comment on the treatment applications of subliminal perception.

Treatment Applications

First, I would stress that basic psychological research on subliminal perception is in its infancy. For a time we did not know if we had a viable baby, but we now know that we do; but this baby is still quite young and we do not know much about it. To a degree, controversy still exists concerning the exact nature of subliminality and in particular, how powerful its effects are. Some investigators (Klein and Holt, 1960) believe that a subliminal stimulus can only influence an already ongoing psychological process but is too weak to initiate a process itself. There is much evidence to support this contention. I mention this point because various treatment applications of subliminality assume that a subliminal message can not only initiate a process of its own, but can in addition reverse a strong, ongoing,

habitual process. For example, when a subliminal message is introduced to help a person lose weight or stop smoking, it must itself be strong enough to register in its own right and then go on to halt a strong habitual act. To my knowledge, the evidence is weak at best in support of this contention. Some recent research, for example, suggests that lengthy verbal messages often used in such studies have complex and confounded subliminal effects (Spence, 1984). A lengthy verbal message extends across the entire visual field so that part of the message goes to the right brain and part to the left brain. Spence has found that the left and right brains handle subliminal messages quite differently. The right brain cannot combine words into sentences; it can only register individual words. If these findings are correct, it would mean that the part of a lengthy message which goes to the right brain cannot be understood as intended. If, for example, the lengthy message was 'I must stop overeating,' the words 'I must'--which would go to the right brain because it was presented in the left visual field and crosses over--will not be understood as a verb-noun sequence but will simply be understood as two separate, unrelated words. Thus, Spence's research suggests strongly that complex subliminal verbal messages cannot be understood as intended. This is another finding supporting the hypothesis that subliminal messages are not understood or processed in the same way as supraliminal messages.

Moreover, good sound clinical practice requires that a person with a substantial problem with overweight, for example, should be treated as having a potential emotional and/or physical disorder. A thorough

examination should be conducted and a treatment program developed based on the total findings. Unfortunately, it is not uncommon to find subliminal tapes sold through the mail or only a perfunctory examination conducted prior to subliminal treatment. Although it is doubtful that the subliminal message can do much harm, if it is taken in place of a proper examination and overall treatment planning, the patient may still be victimized. In my judgment, the clinical value of corrective subliminal messages is far from established and they may indirectly harm the patient by replacing a thorough examination and more effective treatments.

Commercial Applications

Both treatment applications and recent efforts to exploit the commercial possibilities of subliminal stimulation assume that a person's motives and behavior can be influenced, not simply his perception, thought or mood. A subliminal message to stop eating is expected to change the patient's motivation to eat to excess as well as his behavior; or as a result of a subliminal message in the Musak of a department store, he is expected to change his motivation to shoplift and his shoplifting behavior. To my knowledge, there is no substantial evidence that a subliminal stimulus can effect motivation resulting in a change in behavior important to the individual. Aside from this failure to demonstrate effectiveness, there is an even more important question of ethics: Should people be exposed without their knowledge to a message intended to influence their minds and their behavior? My answer is a resounding no. Moreover, if the advocates and

beneficaries of this commercial application believe that subliminal messages are powerful enough to control one kind of behavior, why might it not have unwitting effects on other people exposed to the message? I have remarked earlier that evidence suggests that subliminal stimuli enter into the operations of the mind in highly individual and private ways. In and off itself, this finding would argue against the efficacy of the same message having the same effect on all people. But let us assume that an effect of the kind supposed occurs, might not then this powerful subliminal message adversely affect others who do not intend to shoplift? Might it not trigger intense guilt in someone who harbors the wish or fantasy to be a shoplifter but has never done so or would never commit such an act? Might it not push someone over the brink of his emotional tolerance and produce symptoms? Although I do not believe that these subliminal messages work at all, if they do work as its advocates believe, then they would be powerful enough to change other behaviors in unexpected ways. On both scientific and moral grounds, I believe that Congress ought to look carefully into the possible dangerous effects on the public of subliminal messages employed to change behavior without the individual's consent.

I come to my final point, which in my judgment is of the greatest potential important. My own brain wave research and that in particular of the Russian investigator Kostandov, point directly to the potential use of subliminal stimulation as a lie detector test far more powerful than ones currently in use. By using brain waves which occur within

milliseconds of the stimulus presentation, there is very little time in which efforts at dissimulation or the continuing effects of general stress can influence the course of the response. Although Kostandov assured me in 1979 that his subjects were protected from police use of his findings, for how long can that guarantee last in a police state? But we too may shortly be confronted by the same problem: The use of brain waves to reveal information customarily protected by the utmost privacy of one's inner thoughts. Although this may sound like science fiction, we may be on the threshold of invading the individual's last stronghold of personal privacy--his own inner thoughts. Research is already underway aimed at breaking the electrophysiological code for language so that in time it may be possible to read off a person's thoughts from the pattern of brain waves picked up at the scalp (Chapman, et al, 1977; Chapman, et al, 1980). We already know from our research that emotionally meaningful words have different brain patterns; others have shown that verbs and nouns regardless of language have different brain patterns (Brown and Lehmann, 1979) and that there are different brain patterns for true and false statements (Childers, et al, 1982). I am quite concerned that findings of this sort, which are of fundamental scientific importance and which can ultimately be used to benefit mankind, could in the wrong hands be used for invasive and manipulative purposes.

I would urgently recommend the following:

1) That basic research into the nature and power of subliminal stimulation be more fully supported than at present so that we can learn more about this important scientific area.
2) That both legislative and regulatory action be considered that would undertake to control (a) the commerical misuse

of subliminal messages which may be detrimental to the public and is certainly unethical, (b) the potential exploitation of subliminal perception and correlated brain waves for invasive and manipulative purposes.

3) That in order to provide time for legislative and regulatory consideration of these complex scientific, legal and moral illues, that a moratorium be established for a number of years for all applications and commercializations of subliminal perception and that basic research be encouraged during this moratorium so that a scientific foundation would be provided for enlightened legislative and regulatory action.

Thank you, Mr. Chairman, for this opportunity to present my views on this important matter.

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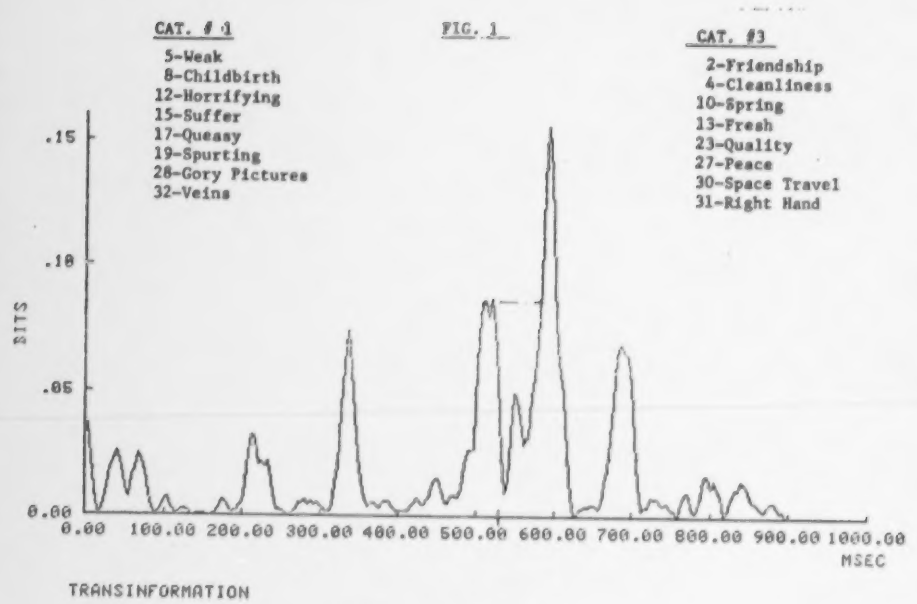
CAT. # 1
5-Weak
8-Childbirth
12-Horrifying
15-Suffer
17-Queasy
19-Spurting
28-Gory Pictures
32-Veins
FIG. 1
CAT. #3
2-Friendship
4-Cleanliness
10-Spring
13-Fresh
23-Quality
27-Peace
30-Space Travel
31-Right Hand
.15
.10
.05
0.00
BITS
0.00 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 900.00 1000.00
MSEC
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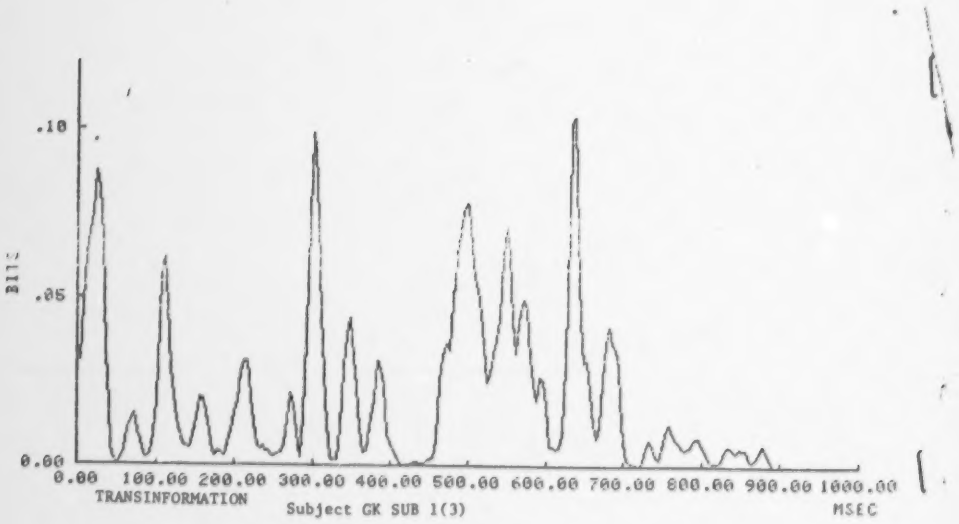
.10
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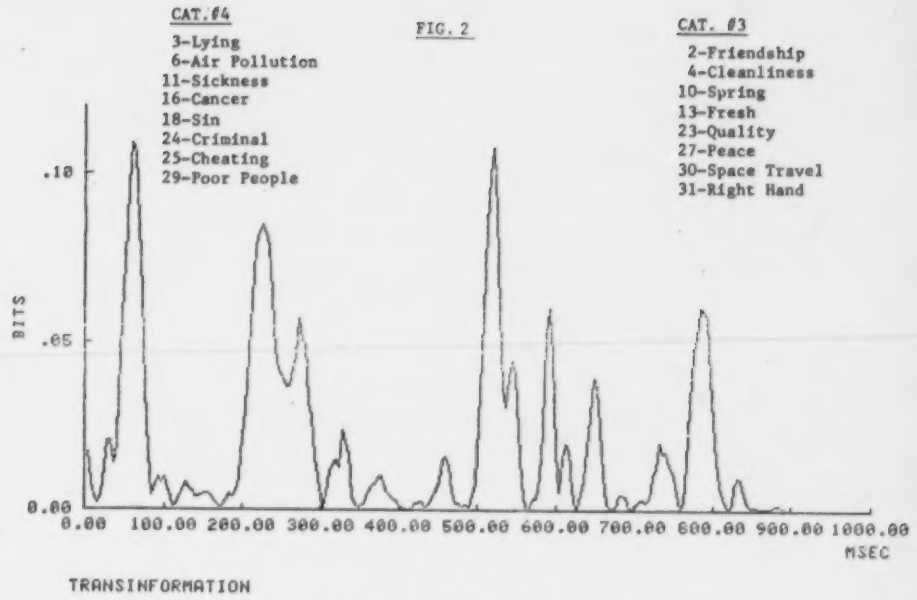
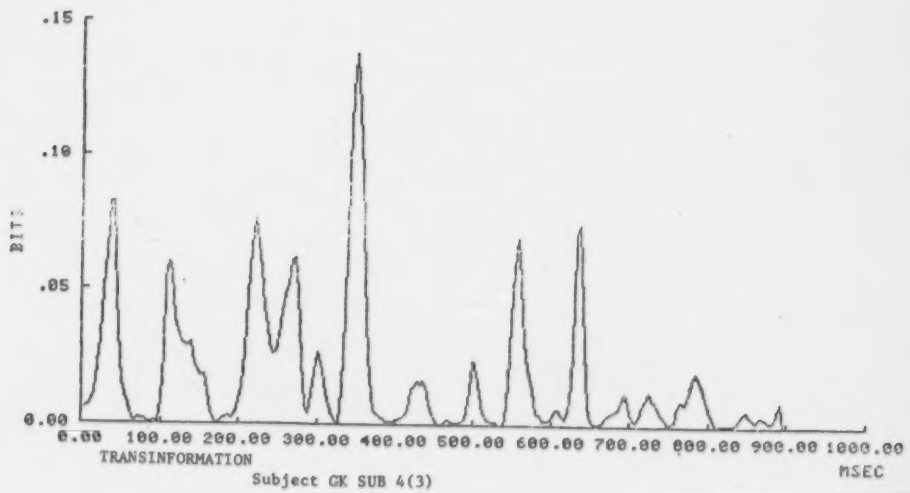


FIG. 2

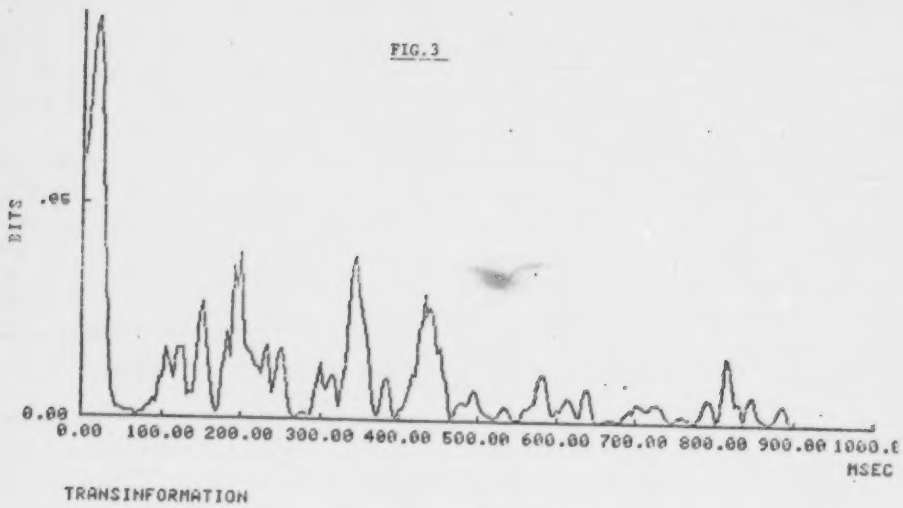
SUBJECT GK SUPRA 4(3)

ELECTRODE 1

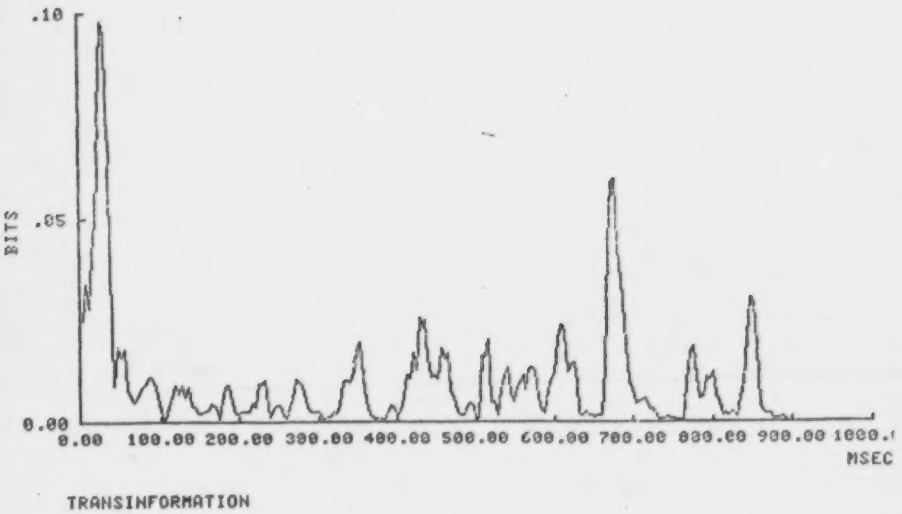


Subject GK SUB 4(3)

FIG. 3



SUBJECT LW SUPRA 1(3)
ELECTRODE 1



Mr. GLICKMAN. Thank you for an excellent statement.

Dr. Silverman.

Dr. SILVERMAN. Thank you, I would like to thank the committee for inviting me. For the past 20 years I have been in research in the subliminal communication technology area at the New York University and at the New York Veterans Administration.

I have had a double reaction today, one of excitement at some of the potential uses of subliminal perception, subliminal communication, that Mr. Tyler and Dr. Shevrin have mentioned; but also, I share very much Dr. Shevrin's concern. I think there are great potential dangers and I think that the committee is well advised to look at these.

Let me just briefly describe some of my own work that will broaden a bit the potential uses of subliminal communication for scientific purposes.

For a long time research in the subliminal area was concerned with simply testing whether subliminal phenomena existed. And at this point, I think it is fair to say that any reasonable review of the literature over the past 30 or so years would convince an unbiased observer that this is a real phenomenon. There is a book by Norman Dixon called "Preconscious Processing" in which he in a very scholarly way reviews the evidence and draws the same conclusion that I just did.

My particular interest in researching subliminal communication is in part to study its potential for understanding how the mind works, particularly the part of the mind that has been referred to as the Freudian unconscious. There have been a great many studies during the past 20 years that have demonstrated that many psychoanalytical ideas about psychopathology are indeed valid.

For instance, there was a study recently that demonstrated that people who are prone to depression could first be subclassified as having depressions that were either related to guilt or related to ideas of loss and then people in each group were subjected to subliminal stimuli that were designed to stir up either loss-related ideas or guilt-related ideas.

The loss-related idea, for example, was the sentence "I have lost mommy." The guilt-related idea was the sentence "I have been bad."

And low and behold, those who had first been classified as having guilt-related depressions responded to the idea, "I have been bad," by becoming more depressed; they on the other hand were unresponsive to the idea to the sentence "I have lost mommy," while those who had been preclassified as having loss-related depressions responded in the opposite way.

In other words, the experiment demonstrated quite clearly with double blind controls being used—that is with neither the people receiving the messages or those giving them knowing at the time just what the messages were—with these double blind controls where one was able to demonstrate that there are indeed people whose depressions are related to ideas of loss and other people whose depressions are related to ideas of guilt.

I should mention that when studies of this sort are conducted they are always conducted with informed consent beforehand and immediately after, the people are told what the messages are. And

that we have found will obviate negative effects that otherwise could occur.

Once subliminal stimuli are presented on a one exposure basis, typically they don't have long lasting effects but there are individual cases where they do. Therefore, this sort of debriefing where people are told what the stimuli are becomes very important.

The other area in which my research has taken me is to use messages that have been designed to facilitate behavior change where people want to change their behavior. In contrast to the messages that Dr. Becker and Mr. Tyler have told you about that I would call suggested messages, the messages that we use are designed to tap into what we call unconscious fantasies and very possibly unconscious memory traces. There are certainly unconscious ideas that people hold, which if stimulated, can have a facilitating effect on changing their behavior.

The particular message that has been found to do this most often happens to be the phrase "Mommy and I are one." If that message is presented subliminally for large numbers of people—though certainly not for all—it can facilitate the behavior change that the person is interested in making.

Recently, for example, there was a study conducted in Montana, the University of Montana, in which people who were interested in giving up smoking were given a behavior modification program for doing this and this was accompanied by subliminal stimulation. Half of the people who received the program received the message "Mommy and I are one," and the other half received a control stimulus, the sentence, "People are walking."

A month after the program ended, 13 percent of the people who had received the message "People are walking" were still abstaining from cigarette smoking which the program itself brought about, but only 13 percent were able to sustain this gain after a month's time while 67 percent of those who got the message "Mommy and I are one" were still abstainers. These were pretty striking results.

This is in the way of kind of broadening the area in which one could look at subliminal stimulation in a positive way, though I would agree with Dr. Shevrin that even when results of this sort are obtained, it does not mean that one should accept them in an entirely positive way. My view is perhaps somewhat more mixed than Dr. Shevrin's, I view it as a tradeoff. There are both negative and positive implications of changing behavior in this way.

What I would like to focus on for the remaining time that I have, however, are some concerns that I have that I think are important to keep in mind. Let me go to an example used early on by the first speaker when he was confronted with the possibility of a religious program flashing on the message "Honor thy father and mother."

Mr. Glickman, you commented that that would be a hard message to take issue with. And in a certain sense of course you are right. However, there are potential dangers in even using messages like this. This gets back to a point that Dr. Shevrin was making.

For example, someone who is dealing with guilt issues could well be made to feel more guilty receiving a message of this sort and it is not so much that the person would come out of the experience saying "I feel guilty"—that is unlikely though it is possible. What

is more likely is that a particular symptom, psychiatric symptom that the person was vulnerable to could become exacerbated under these circumstances.

If you go back to the study that I told you about earlier where you flash on the message "I have been bad," or "I have lost mommy," this did not lead the people in the experiment to say that they felt they had been bad or they were concerned with loss. What it led them to do is to become more depressed. So in other words, when people have vulnerabilities to particular symptoms these symptoms can be exacerbated by particular subliminal messages and not only noxious messages like the ones that we used in this particular experiment, and for which the people would be briefed, but even messages that could be viewed as only positive, quote unquote.

Let me give you a particular example that I think drives this point home quite well. In one of the studies that we carried out—it was a study on weight reduction where people who were interested in losing weight were given a weight control program that was accompanied by subliminal stimulation—and half of the people got the "Mommy and I are one" message that I told you about before, the other half got the message "People are walking."

One of the people in the control group, the group that was receiving "People are walking" suddenly left the study. Now whenever this happens we contact the person and try to find out what the person's experience was. When we contacted this woman she said that she felt very anxious for some reason after two experiences in this investigation. And at that point we debriefed her as to what the subliminal message was she was receiving, "People are walking." And she told us immediately the following, she said: "Gee, I can understand now why I got so upset." And she then went on to describe her childhood in which she lived in Canada, described a sadistic father and said that whenever she or any of the kids in the family were bad, he would tell them go out and take a walk.

Right after she related that she recalled that the day she left the study was a day that it was snowing.

Now, obviously this is anecdotal but I could cite for you other anecdotes as well that I think drive home what the danger is, that is, for this particular woman this phrase which anyone would say is completely innocuous, was not innocuous.

Mr. GLICKMAN. Dr. Silverman, would a phrase, be honest, do not steal, in a department store, would that cause problems to people along the same lines even though it is something that obviously is socially unacceptable to do.

Dr. SILVERMAN. Conceivably it could, too. There, too, it could stir up guilt issues and persons vulnerable to guilt and had psychiatric conditions in which guilt was implicated, those symptoms could become intensified. Now while typically if that happens I wouldn't expect it to last very long, there are instances, though few and far between, where effects could be longlasting because the situation in which it occurred could have particular meaning to the person so that it has a kind of impact that isn't easily lost.

Mr. GLICKMAN. It would seem to me if a person is going to be—and granted I have not near the expertise in this that you gentle-

men do—but if a person is going to be so reactive to a message like that subliminally, will he clearly be reactive to a message nonsubliminal, it is going to be hard for that people to deal in the real world under any circumstance.

Dr. SILVERMAN. That is likely to be true. However, we are also talking about instances where these messages are repeated over and over again so that if a person works in a department store and for every day that he is there for a period of time this message is going to come through, that is rather different than the situation you describe.

Dr. GLICKMAN. OK. Go ahead and finish your statement.

Dr. SILVERMAN. Well, I will end my statement there. I will certainly be happy to entertain any questions that you have. But the last point that I made that I wanted to particularly focus on—because I think this is something that people don't generally recognize—that is to say when people respond to subliminal messages even though the message may be suggestive of something it doesn't mean that the person will either do the thing or not do the thing. The idea that is embedded in the message, embodied by the message could stir up something in the person that has particular meaning to him that could trigger off symptoms or intensify them.

Now, as you implied this could happen in every day life and indeed it does. However, that simply is the chance one takes that you have no choice about. But to be subjected to subliminal messages goes beyond one's everyday expected experience. For that reason I think the committee is quite justified in being concerned.

Mr. GLICKMAN. Let me ask you this question, Dr. Shevrin. I would like you to restate if possible some very ominous concerns that you expressed in your statement about I would say the relationship between subliminal—as I look at your statement—the relationship between subliminal stimulation and brain wave electrophysiology and the implication is that some of the potentiality for some of the most evil forms of thought control and not just thought but action control that one could think of.

I wonder if you might restate that. It is a heavy thought and I think it is something that—it doesn't necessarily relate to the issue of don't steal, but it is something that may be even more important for us.

Dr. SHEVRIN. It does relate to the issue of don't steal, Mr. Chairman, it goes, I think, beyond it. But it is the very same kind of point of view that I am concerned about that would lead to using subliminal messages in that manner that would also lead to perhaps misuse of these new findings that I am so very concerned about. First let me say that the ominous warning that I gave is not something that I foresee happening the day after tomorrow.

I think that we are a long way off from that although I am in no position to say how long. But at the same time that is a consolation, I think, insofar as it does give us the opportunity, it does give us the time in this particular instance to carefully consider where research of this kind might be leading us and what its implications might be and how we can best maintain some control, beneficient control of this.

As I understand the intent of your question, it has to do with my elaborating a bit further some of the concerns that I have.

Well, I have already indicated briefly what some of the findings are right now in the literature. There is my own research that I have tried to illustrate for you this afternoon in which we have been able to show and repeat this for a number of people that indeed you can pick up significant differences in the way the brain responds to subliminal words that have very real emotional impacts for people.

We know this because they are related to a person's intense behavioral disturbances and emotional conflicts. It is for real. Indeed the brain does response differently.

I made reference to the interesting work of several Russian investigators, where they are at this point I cannot tell you because communication has not been very good with the Russian investigators in the last several years. But at least as of 1979–80, the Russian investigators have been able to show that again words that are selected very carefully to be of potent emotional significance with respect to their relevance to a supposed crime, again will give rise to very different patterns of brain response when they are presented subliminally.

I want to stress that.

Now, when we add to that a whole set of other findings that have nothing directly to do with subliminal perception as such, but for example with breaking as I would call it the electrophysiological code for thought or language, there is research going on right now in several different places in this country where we know something about the nature of the brain wave patterns if you will that are associated with different kinds of words that are associated with verbs and nouns. In this particular study interestingly comparing two very different languages like English and a Swiss dialect, the brain pattern for a verb is very different from the brain pattern for a noun.

It even is as subtle as I can portray in the following example. Take the word "fire." Well, you know we use the word "fire" as a noun or a verb, ready, aim, fire, or light the fire.

Well, researchers have been able to show that the brain pattern for these two different uses of the very same word are different. Now, in other words, you will be able to tell from the brain pattern that your computer will tell you is there whether the person has looked at the word "fire" meaning ready, aim, fire, or whether he has looked at a word in the sentence, "Light the fire."

It is as subtle as that. I also mentioned the research where people are presented with proportions of various kinds, some of which are true, some of which are false and these are ordinary harmless statements but then we are able to tell in this research when the person is saying true to a false statement or false to a true statement.

I indicated the implications this has for an immediate application and I mention this not because I want to encourage this application but rather because I want us to be forewarned about it. It has got to come. It is in the nature of the way people are that if something like this is going to be possible they are going to try to use it and that is to apply it for example for a very, very sophisticated lie detector test.

Now, the second important phrase of this research will have to take the form in which instead of beating off the brain pattern to words that have been presented to a person, either superliminally or subliminally it is rather to detect a pattern of brain response associated with thinking the word "fire" or whatever else you have in mind.

In principle this is entirely possible. There is some research already going on like that. In fact I think it is associated with the Defense Department and I am at full liberty to talk about it and that is where for example the effort is made to see if by detecting the pattern for the word "fire" like in ready, aim, fire, that you can have a pilot in an airplane be able to think the word "fire" in order to control his cannon rather than have to do anything else.

Now this research has some rather interesting psychological problems, for example, if I were to tell you don't think hippopotamus, you would think hippopotamus automatically and your cannon might go off; if you were related to that pattern.

But these are really solvable problems scientifically. It is only a matter of time, money and effort, ingenuity. We have seen this happen over and over again. It is not going to call for a stroke of genius to do this. It is going to call for a kind of steady scientific work, well-supported perhaps by defense contracts which will make it possible for us to identify these patterns that are associated with thought.

Mr. GLICKMAN. Let me go from that which is kind of some of the more perhaps cosmic consequences of one of these issues which I think are very important, down to the some of the current uses of subliminal technology. How do you respond to the use of technology as methods of controlling let's say the kinds of conduct like drug usage or alcohol usage that might be required of people who have been convicted or involved in some misuse of these substances?

Dr. SHEVRIN. I would be very much opposed to them. I would be opposed—the question was directed to me?

Mr. GLICKMAN. Both of you. You start and we will——

Dr. SHEVRIN. I perhaps differ with other panelists including Dr. Silverman, I would be opposed to their use at this time. I say "this time," I mean before there has been much, much more research done of a basic science sort to establish both the effectiveness of what is being applied; and second the absence of harm. I don't think we have a positive answer to either of these questions.

Furthermore, I think that with respect to the question of effectiveness and harm—mainly the latter—as Dr. Silverman was saying just a moment ago and I was saying in my prepared remarks when we provide a person with a subliminal message without really knowing something about that person we have no clear idea of what its impact may be on that particular person.

Now, if we deal with large groups of people we may get an overall group or average effect but we may have all kinds of very idiosyncratic effects on individuals. As Dr. Silverman was just illustrating through that very dramatic anecdote, in some people it may produce rather very noxious and substantial and longlasting effects only we will never hear about it. In other words, they won't complain to the FCC because they don't know what happened to

them. They certainly won't complain to the FTC or any other Government agency.

Mr. GLICKMAN. You say the jury is out on their effectiveness and they may cause harm.

Dr. SHEVRIN. That is right.

Mr. GLICKMAN. Dr. Silverman.

Dr. SILVERMAN. I don't think the jury is out on effectiveness, at least not for groups of people. In terms of any given individual that is another matter and as Dr. Shevrin was indicating for a particular person a message that may be effective for a group may not be effective for him or her and conceivably could even have a negative effect.

I agree with what Dr. Shevrin was saying, the question is what the implications are of that in terms of what we should view as reasonable at this time. I am undecided at this point as to whether it would be justified for people to use subliminal stimulation except for that of course for research investigative purposes which I myself do and which is very much needed to further understand the potential of this medium.

But what one's stand should be when it comes to using this therapeutically outside the context of a research study such as the instances that Mr. Tyler described using it in a hospital, I think it may be reasonable to use the technique at this time if certain precautions are taken. The precautions at the very least I would like to see done in order to use the technique as Mr. Tyler described, was first, informed consent which Mr. Tyler indicated would be the case in the hospital.

Second, to monitor very carefully what is happening in addition to what you are specifically looking for. That is to say, it is one thing to observe that a person is losing weight because he or she is getting a particular subliminal message but that may not be all that is happening. I would think that concerns like Mr. Tyler's would do well to proceed as good drug companies do, that is to say that they have a research and development unit; they test the effectiveness of their product; they are also on the lookout for unexpected effects; and they will also have if not warnings, statements to the consumer about potential negative reactions.

At the very least one would want to see that.

Mr. GLICKMAN. Well, I think your point is good. I think the problem in comparing with the drug industry is the tangibility factor of pharmaceuticals versus the intangibility factor of almost everything we are talking about here. But I think there are some relevancies to what you say as well and I do think that the research needs to go forward.

I think that perhaps that is the heart of your points today, is that I don't know how serious a national problem this is, it is obviously not of widespread use today in commercial sectors of our economy according to the testimony we have heard today. It may be widespread in the medical profession or maybe it is widespread in our sectors, but clearly we need to do more work in understanding it than we currently have done.

So we appreciate your testimony here very much and if either of you gentlemen want to share any other of your research benefits with us we would like to get that for the record as well.

Thank you very much.
[The information follows:]

BRAIN WAVE CORRELATES OF SUBLIMINAL STIMULATION, UNCONSCIOUS ATTENTION, PRIMARY- AND SECONDARY-PROCESS THINKING, AND REPRESSIVENESS

HOWARD SHEVRIN

In this paper I will describe a series of experiments which show, for the first time to my knowledge, a relationship between the electrical activity of the brain in response to a stimulus and unconscious thought processes involving attention, perception, primary-process thinking, and repression. Not all of the findings are solidly established, but the experimental method is rich in possibilities for investigating complex psychological events of interest to the psychoanalyst. This method draws upon two techniques, subliminal stimulation and the cortical evoked response, which will now be described.

SUBLIMINAL STIMULATION

Experimental work on subliminal stimulation goes back to well before the turn of the century, but it was not until Fisher (1956; Fisher and Paul, 1959) undertook to replicate Pötzl's lit-

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tle-known tachistoscopic experiments that investigations of subliminal stimulation were made relevant to psychoanalysis. Over the past 15 years more such studies have steadily accumulated, accompanied by heated controversy. Out of this controversy the existence of subliminal perception has emerged as a new scientific fact. This conclusion was reached by Bevan (1964), an entirely nonanalytically oriented psychologist and an accomplished experimentalist, on the basis of his review of over 80 studies.[1] In all the sound and fury of debate about the status of psychoanalytic concepts, the quiet birth of this scientific fact bearing so direct a relationship to psychoanalysis, born in the laboratory and not in the consulting room, has gone unnoticed. The baby is thriving, and as one of the first legitimate offsprings of psychoanalysis and experimental psychology it deserves some special consideration.

The center of interest can now shift from demonstrating the existence of subliminal perception to exploring its nature. Here we can expect new controversy. Bevan, although conceding the existence of subliminal perception, does not believe that the evidence warrants the conclusion that subliminal input is subject to laws of perception and association different from those governing supraliminal perception. Klein (1959) and Gill (1963), from the perspective of ego psychology, have also interpreted the data as suggesting that subliminal input is generally subject to a nondynamic inhibition rather than to a repressive force which would result in primary-process distortions in thinking. Elsewhere I have argued (Shevrin, 1968) that this interpretation can be challenged, in the light of the available evidence and because of the limited place accorded motives and transference factors in most subliminal experiments.

In the subliminal method used in the work to be described, a special stimulus was constructed which is capable of eliciting several types of associations related to the psychoanalytic distinc-

[1] In a more recent comprehensive review and analysis of research on subliminal perception, Dixon (1971) concluded that the existence of subliminal perception has been demonstrated in at least eight different contexts: dreams, memory, adaptation level, conscious perception, verbal behavior, emotional responses, drive-related behavior, and perceptual thresholds.

tions between primary- and secondary-process thinking. The aim was to investigate the conditions under which a subliminal input would undergo primary- and secondary-process transformations in the associative process. The method draws on certain psychoanalytic assumptions about language and speech in dream, symptom formation, and psychosis. We assume, for example, that in dream formation words may be treated as clanglike auditory patterns, seeming to lose their conceptual function. It is further assumed that this loss of conceptual function occurs as part of the defensive displacement and condensing process of dream work. An especially rich illustration of this process can be found in Erikson's (1954) description of a dream that consisted of one word, SEINE, in which was compounded allusions to the French river, the Latin word SINE, the English word SIN, and the German words SEHN and SEINE. Words can be pivotal in the formation of a dream; they have the further advantage for the experimenter of being easy units to identify and to add up in various ways for purposes of measurement. For technical reasons, however, it is advisable for the stimuli themselves not to be words, but to be capable of eliciting words. One such technical reason is that words, being greatly overlearned, have remarkably low recognition thresholds. It is also important that the elements of the stimulus should not ordinarily occur together. Most ordinary pictures, for example, have a great deal of internal consistency. A picture of a street scene would be a poor stimulus because if one were to catch a glimpse of a house such associations as street, tree, car, etc., would naturally follow and would not be instances of true subliminal perception. A stimulus constructed to overcome these problems is illustrated in Figure 1. It is a picture of a pen and a knee. Pens and knees do not ordinarily occur together and thus have a low order of contingent association. If one were to think of pen it is highly unlikely that one would also think of knee, and vice versa. The picture is of much more than a pen and a knee—there is a leg, calf, thigh, pen point, etc. It is also a male phallic symbol and a female knee; it is also cut off, mutilated, and contains hostile as well as sexual connotations. For present purposes, however, these other factors have been ignored (but it is by no means denied that all of these may play some part in subliminal perception). Instead, our interest has

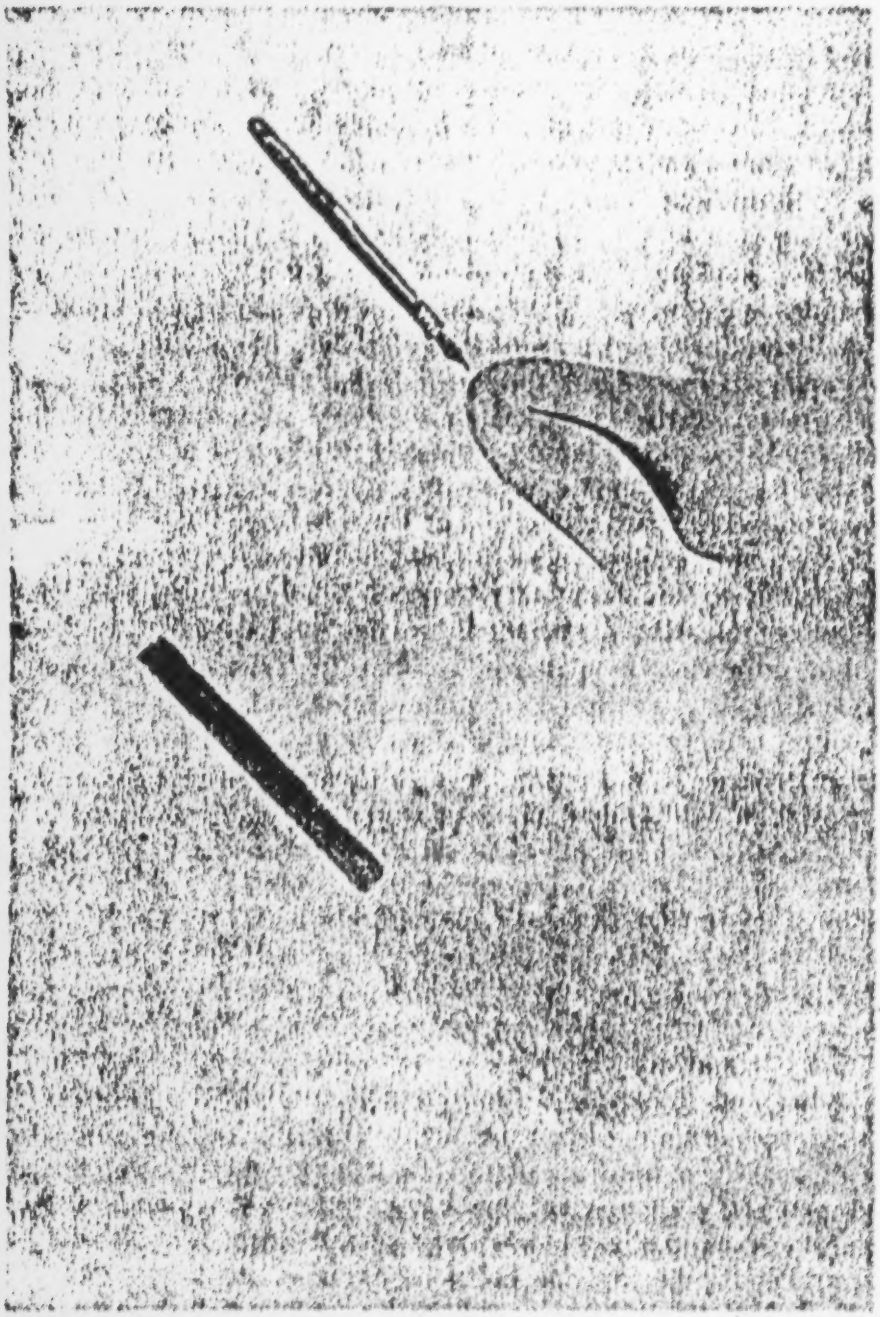

FIGURE 1. Experimental stimuli. The PEN/KNEE is the rebus (R) stimulus. Lower stimulus is abstract (D) stimulus. The actual stimuli are in color: the pen is dark gray with a gold nib, the knee is a light flesh tone.

been focused on certain verbal relationships and transformations. The two objects can be designated as a pen and a knee with the customary dictionary meanings of the words in mind. These words, however, can be treated in the associative process as concepts, clangs, or clang combinations. Thus, when they are treated as concepts, associations such as *ink*, *paper*, and *write* to pen, and *leg*, *calf*, and *body* to knee, may occur. When, however, they are treated as clangs, associations such as *pen*nant or hap*pen*, or *ne*ither or a*ny* may occur. Lastly, the words can be combined or "condensed" to form a new word, *penny*, totally unrelated in meaning to the objects themselves. This clang combination in turn may give rise to associations—*coin*, *round*, *poor*, etc. By obtaining association norms for these key words it is possible to score these association effects with a degree of reliability limited only by scoring error, which has generally been less than 3%. The conceptual associations, based on words referring to objects, are close to the secondary process, whereas the clang and clang-combination associations, based on words treated as "things" or auditory patterns, are close to the primary process. The stimulus is a rebus—a pictorial representation of a word; it is a little waking fragment of what we suspect happens on a grander scale in the formation of a dream. The three levels of association will be designated as *conceptual*, *clang*, and *rebus*.

A series of studies has been carried out with the PEN/KNEE rebus and other rebuses. In general, the findings are encouraging. With earlier versions of two rebuses (TIE/KNEE and BEE/GUN), we found that rebuses exposed subliminally can influence word choices in the expected direction (Shevrin and Luborsky, 1961). Moreover, at prolonged supraliminal exposures subjects could not identify the rebus level without broad hints, although many had already responded at this level following a previous subliminal exposure. This finding was interpreted to mean that primary-process thinking is not easily accessible in the usual alert, conscious, waking state. In another study in which the rebus method was used, we were able to show that the same subliminal input can enter into sleep consciousness in significantly different ways (Shevrin and Fisher, 1967). We found that penny associates were more numerous in associations following REM awakenings, and that pen and knee associations were more numerous in associations following NREM awaken-

ings. Both types of association occurred with greater frequency following their respective sleep stages than in the presleep waking state (see Figure 2). We interpreted these findings as showing

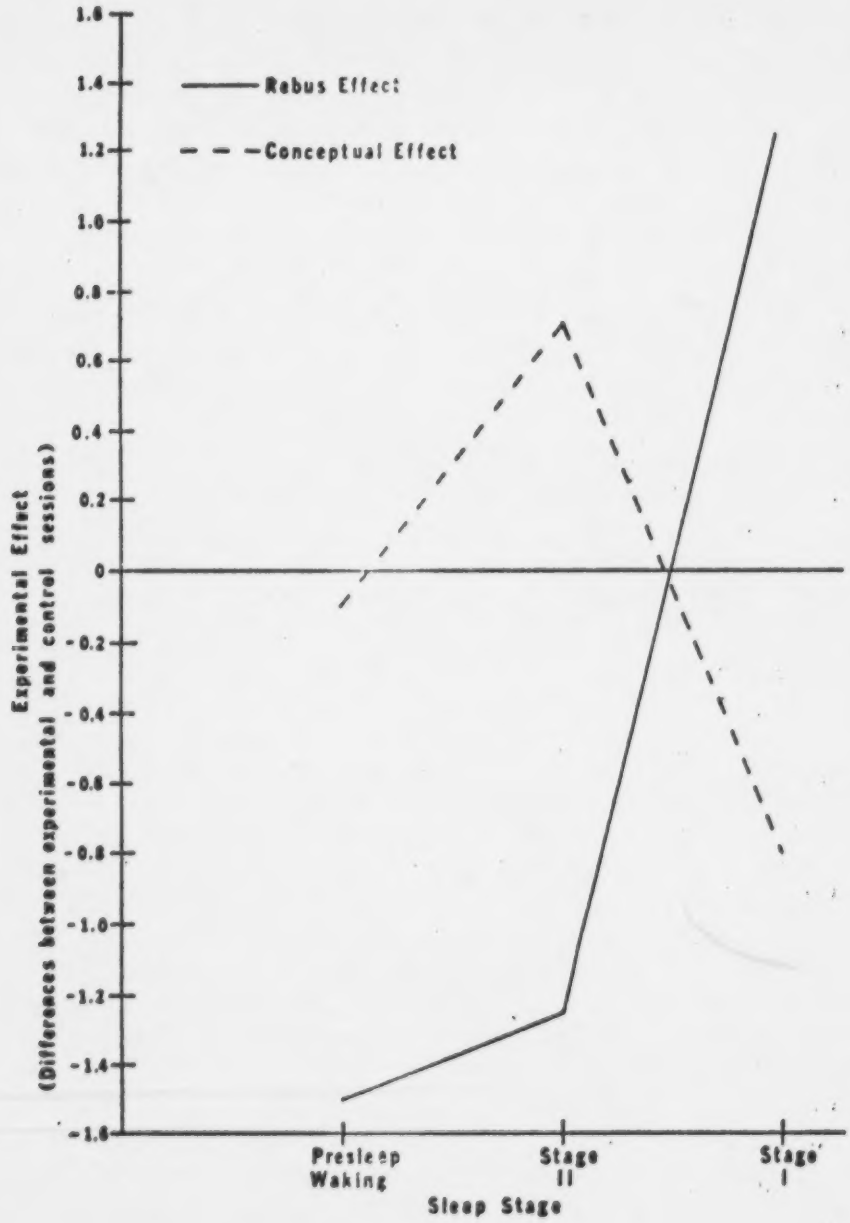

FIGURE 2. Rebus and conceptual subliminal effects as a function of sleep stages. (Median values; N = 10.)

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that the primary-process reworking of a subliminal input occurred in REM sleep and that the secondary-process reworking of the same input occurred in NREM sleep. This interpretation is based on the assumption that the states of consciousness prevailing in sleep have a certain momentum: although to outward appearances the subject is awake as he gives his associations, they remain substantially influenced by the immediately preceding sleep stage. Fiss, Klein, and Bokert (1966) have reported a similar finding for TAT stories obtained after NREM and REM awakenings.

In a series of three experiments, we have shown that hypnosis will potentiate conceptual-level effects but that a dream is required if a rebus effect is to appear (Stross and Shevrin, 1968). A hypnotized subject's description of an image obtained after the TIE/KNEE rebus was flashed runs as follows (TIE associates are in capitals; *knee* associates are in italics):

Hypnotic Stimulus Description (TIE/KNEE rebus)

S: It was a rather orange square and a black dot in the center of it. It was quite blurry and that was all I could see.

Hypnotic Image #1

S: Two people are *sitting* on a park bench reading newspapers which are spread out on their laps. The bench is made of GREEN slats, has GREEN iron *legs* and big slabs of wood under the *legs*. It's set on a path, a gravel path, gray and *white* and blue gravel. They're both looking very intently at their newspapers and their heads are *bent* so that they're looking at them and they're HOLDING them open flat on their laps. They're both MEN and they're WEARING rather formal SUITS and bowler HATS and they have shoes with spats and the *white* of the spats stand out. Everything else is gray. There's grass beyond the path and a few bushes and no trees. There's a big iron fence behind the bushes and the street on beyond and some tennis courts beyond that. There are cars on the street and people *playing* tennis at the tennis courts. These two MEN are just *sitting* and frowning at their newspapers.

A hypnotized subject's recall of a dream obtained the day after the PEN/KNEE rebus was flashed reads as follows (*penny* associates are in italics):

Hypnotic Stimulus Description (PEN/KNEE rebus)

S: It just looked like a couple of broad lines that moved horizontally across the picture. The top line being, sloping upward.

Hypnotic Dream Recall

S: I was carrying this suitcase and a violin and a bunch of other packages and I told her I been, just arrived in town from out of town. I had just traveled and I was just worn out so she apologized and got a colored lady from the ladies' room to come and help me and this lady was very help–, very kind but she picked up all, just a few of these little packages [laughs], the luggage and the violin and I took them out through the department *store* out to a lawn where we were, this *friend* then was out there waiting for a taxicab and she had other luggage there. I put down my packages there but this time the colored lady had taken these little parcels into the washroom and I had to go back after her and get them and come back to where the taxicab and luggage was and then I was confused because I didn't know how much to tip the porter that was putting our baggage in the taxicab and this *girl* who had helped and I finally decided I'd tip them both the same. I gave them a *quarter* and a *dime* and she was pleased because I had, she had felt I had tipped her quite a bit, rather tipped her as much as I had the man who had done much more.

On the assumption that the hypnotic state would be sensitive to primary-process thinking, we had hypothesized that hypnosis would augment both rebus and clang effects. We found, however, that dream work is necessary before these primary-process effects can appear. On the basis of clinical and theoretical considerations, Brenman (1949) reached a similar conclusion. The findings from these various studies demonstrate that the rebus method works and can bring some interesting relationships to light.

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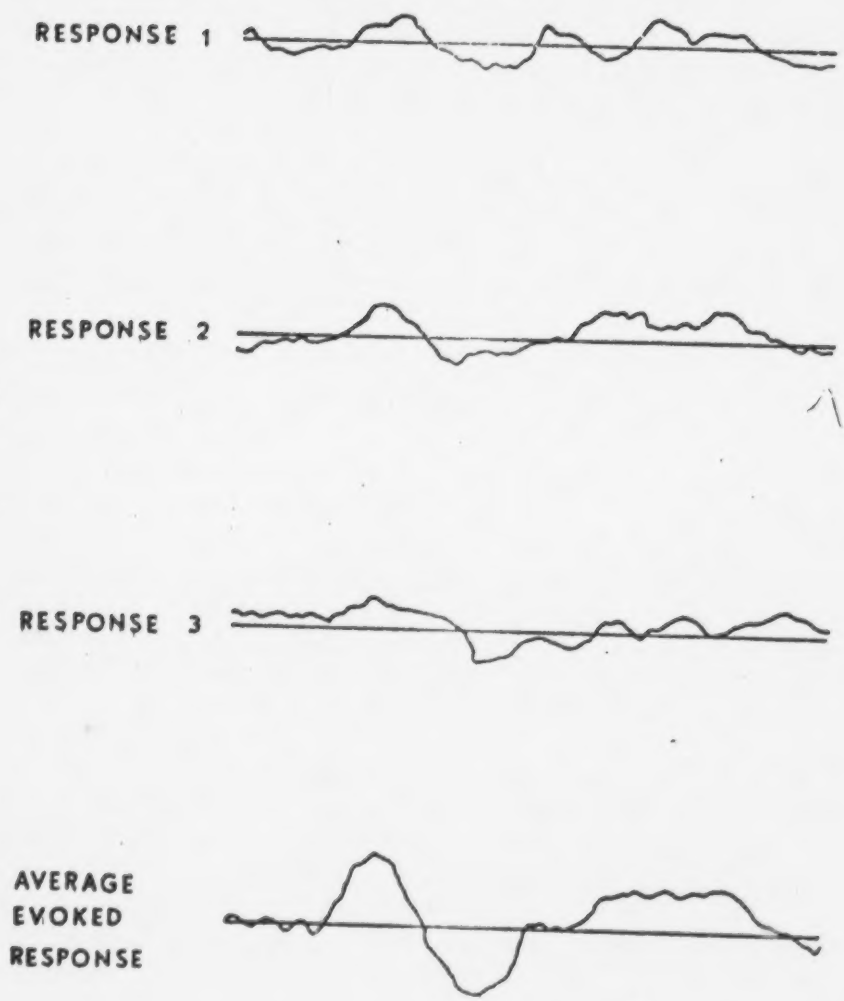

SCHEMATIC REPRESENTATION OF
AVERAGING METHOD

FIGURE 3. Responses 1, 2, and 3 represent samples of EEG-recorded brain responses obtained immediately after a given stimulus has been presented. The bottom curve is the *average* of these three curves, showing how a component recurring in response to a stimulus will be clearly visible whereas random activity or noise will tend to "average out."

CORTICAL EVOKED RESPONSES

The second method on which the research is based is the average evoked response, or AER. Until this method was devised it was extremely difficult to detect the brain's response to a discrete stimulus. The EEG itself is a melange of interacting responses to a great variety of internal and external stimuli, and can show a discriminating response only if amplitudes are substantially high. With a small-sized computer, however, it is possible to "feed in" EEG data and to obtain in return a response pattern in the form of a curve which shows the brain's specific response to a discontinuous repetitive stimulus in any modality. Figure 3 shows schematically how this averaging is accomplished. In the upper three curves are the "raw" EEG responses to a given stimulus. One component, varying in amplitude and slightly in latency, is present in each curve. Much of the remaining activity varies considerably from response to response. The common wave component will remain in the final average curve (see bottom line of Figure 3), while the randomly varying waves will tend to cancel each other out. The common wave component thus represents the brain's specific response to a stimulus.

The new technique is based on one of the oldest scientific methods—what J. S. Mill referred to as the method of concomitant variation. In more modern terms, the signal-to-noise ratio is increased, so that the signal—the stimulus-related activity—can be detected, while the "noise"—the stimulus-irrelevant activity—is appreciably reduced. The signal which emerges has one intriguing property—it seems to be associated with attention. For example, if a subject is instructed to attend to *dim* flashes interspersed among bright flashes, the amplitude of the average evoked response within approximately the first 260 msec. will be greater for the dim flashes than for the bright flashes (Haider, Spong, and Lindsley, 1964). Intuitively, we would expect the bright flashes to induce a bigger wave; that is not what happens, however, because the amplitude is not a simple function of intensity but is also associated with a complex psychological event—attention. In a review of some 162 studies, Tecce (1970) concluded that the preponderance of the evidence favors the hypothesis that certain components that appear within 200–300 msec. poststimulus are concomitants of attention, although con-

siderably more work in clarifying certain variables needs to be done. From a psychological and psychoanalytic point of view, this is an exciting discovery: a complex psychological event like attention has been found to have a specific brain referent. Moreover, the method is objective and not difficult to master. A good deal of recent work (Donchin and Lindsley, 1969) shows that muscle artifacts cannot account for these waves and—more important—that there is a close morphological similarity between the evoked responses obtained with scalp electrodes and those obtained with implanted electrodes. It is doubtful that we are dealing with artifactual responses produced by muscle potentials, by interference from the skull and scalp, or by pupillary changes.

A series of experiments will now be described in which the subliminal and evoked response methods were combined.

The First Study: Cortical Response to a Tactile Stimulus during Attention, Mental Arithmetic, and Free Associations (Shevrin and Rennick, 1967). This experiment is in some respects a "warm-up." We wanted to see for ourselves whether the average evoked response was associated with attention, as others had reported. In addition, we wanted to find out (a) if the evoked response could be used to discriminate between different concomitant psychological processes, and (b) if the evoked response would vary with the effects of a subliminal stimulus. The latter question was in this experiment a secondary one.

The stimulus was a light touch to the index finger delivered by a delicately balanced stylus some 40 times at intervals ranging from two to six seconds. Subjects were asked to perform three tasks: selective attention, mental arithmetic, and free association. In selective attention, the subject was asked to pay careful attention to the stimuli and to estimate the varying time intervals between successive touches. In mental arithmetic, the subject was asked to subtract serially by sevens from some randomly selected high number (320, 410, etc.) while the tactile stimulus was being delivered. In free association, the subject was asked to let individual words come to mind for a period of two minutes while the tactile stimulus was being delivered. Each set was induced twice in a counterbalanced order. The electrode placement was bipolar: parietal-frontal. Before "hooking up" the subject, we flashed the picture of either a pen or a knee at 1 msec. The pen was

flashed for one group of subjects, and the knee for another group. The subliminal part of this experiment was secondary but nevertheless of interest. The rebus picture was split up to provide a control for other experiments: to see if rebus effects would appear even if the rebus segments were not combined. We found no such rebus effects. The influence of the two subliminal stimuli was to be detected in the free associations. The subjects were 12 pairs of twins, ranging in age from 13 to 19, borrowed from Gardner's (1964) longitudinal study of cognitive styles and defenses in twins. The reason for using twins will become apparent later.

Our hypotheses in this study were:

1. If the average evoked response is related to attention, certain amplitudes should be greater in selective attention than in either mental arithmetic or free association. These latter two tasks were in effect distracting conditions.

2. If the average evoked response can subtly reflect differences in concomitant psychological processes, then the average evoked responses for mental arithmetic and free association should differ.

From a psychological standpoint, mental arithmetic is decidedly different from free associating. Mental arithmetic requires the subject to concentrate on a pattern of mental manipulations, whereas free associating requires the opposite—attention to internal processes but no manipulation of them.

3. If the average evoked response is associated with attention and thus can reflect a shift between inwardly and outwardly directed attention, then the evoked response components associated with attention to the *external* tactile stimulus should be lower for subjects who show high sensitivity to the subliminal stimulus in their free associations. Here we are assuming that the subliminal stimulus evokes associations which become conscious in greater numbers if attention is directed to internal cues.

The findings are schematically represented in Figure 4. The first hypothesis was confirmed. The trough-to-peak amplitude, A-B, which peaks at approximately 107 msec., was greater in selective attention than in free association or mental arithmetic. Also, the two amplitudes measured from baseline to peak, B and D, were significantly greater in selective attention than in the

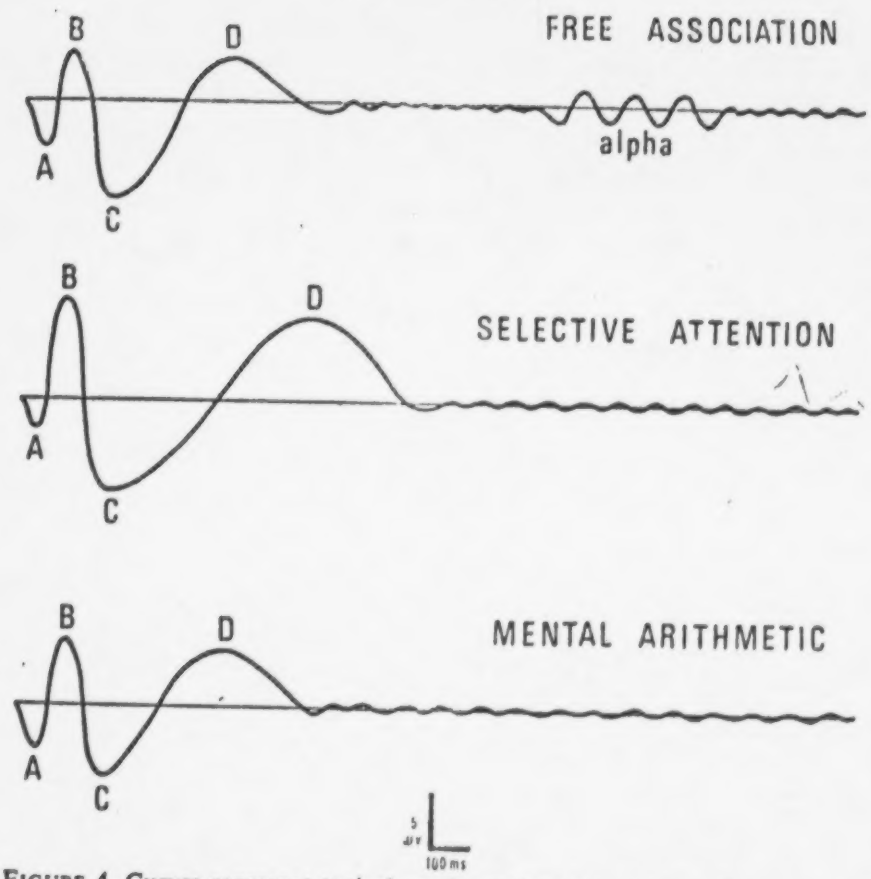

FIGURE 4. Curves represent typical conformations for each condition. Amplitudes and latencies at points A, B, C, and D were computed from the average of 48 measurements made in each condition. Incidence of α bursts is indicated schematically.

TABLE I

AMPLITUDES OF AER COMPONENTS MEASURED FROM ESTIMATED BASELINE (WITH LAST 500 MSEC. OF 2-SEC. READOUT USED TO DRAW BASELINE THROUGH FIRST 1000 MSEC.)

Condition	A wave	B wave	A to b (trough to peak)	C wave	D wave
Free association	3.90	−4.52	8.43	7.71	−3.76
Selective attention	2.81	−8.54	11.38	8.23	−6.99
Mental arithmetic	3.74	−5.54	9.28	6.86	−4.77
		$>p<.001$	$>p<.05$		$>p<.01$
		$>p<.01$	$>p<.05$		$>p<.05$

The trough-to-peak amplitudes computed from point A to point B are included to provide a measu independent of errors in estimating the baseline. Significance levels less than .05 are shown.

other two conditions. A summary of these findings is presented in Table 1. The latency of peak D occurred significantly later in selective attention than in free association or mental arithmetic (670 msec. versus 492 msec. and 489 msec. respectively, $p < .01$ for both comparisons). In Figure 5 a set of actual curves from one subject is shown. In the second free-association curve there is a burst of alpha (synchronized brain activity in the 8–12 per second range) which is not found in any of the selective-attention or mental-arithmetic curves. The presence of alpha in free association significantly discriminated free-association curves from either the selective-attention or mental-arithmetic curves (χ^2 for correlated proportions = 9.00, $p = .004$). The second hypothesis was to some degree supported in an interesting and unexpected way. The average evoked response did reveal a difference between free association and mental arithmetic in one particular parameter, alpha, often associated with drowsy, distracted states. Alpha is inhibited by problem solving and by attention to an external stimulus.

Lastly, we found that among the 12 subjects shown the pen stimulus there was a fortuitous split (six and six) between subjects who used pen associates and those who used none at all. When we compared these two subgroups we found that the B amplitude (the electrically negative portion of the A–B component) was *less* than half as great in the subjects who showed a subliminal effect as it was in the subjects who showed no subliminal effect (3.50 versus 7.22, $t = 2.287$, $p < .05$). A comparable effect could not be shown for the subjects shown the knee stimulus. The finding was thus limited to one of the two subliminal stimuli. For the pen stimulus it seemed that an inverse relationship existed between directing attention outward (to the tactile stimulus) and directing attention inward (to associations related to the subliminal stimulus). This finding is consistent with Rapaport's (1959b) assumption that attention is available only in a determinate quantity in a given state so that there is "competition for it . . . between internal and external excitations" (p. 782).

This first experiment was encouraging. The average evoked response was not only associated with attention but could reflect differences in psychological states, as well as *shifts* in attention with respect to a subliminal stimulus. One could be emboldened

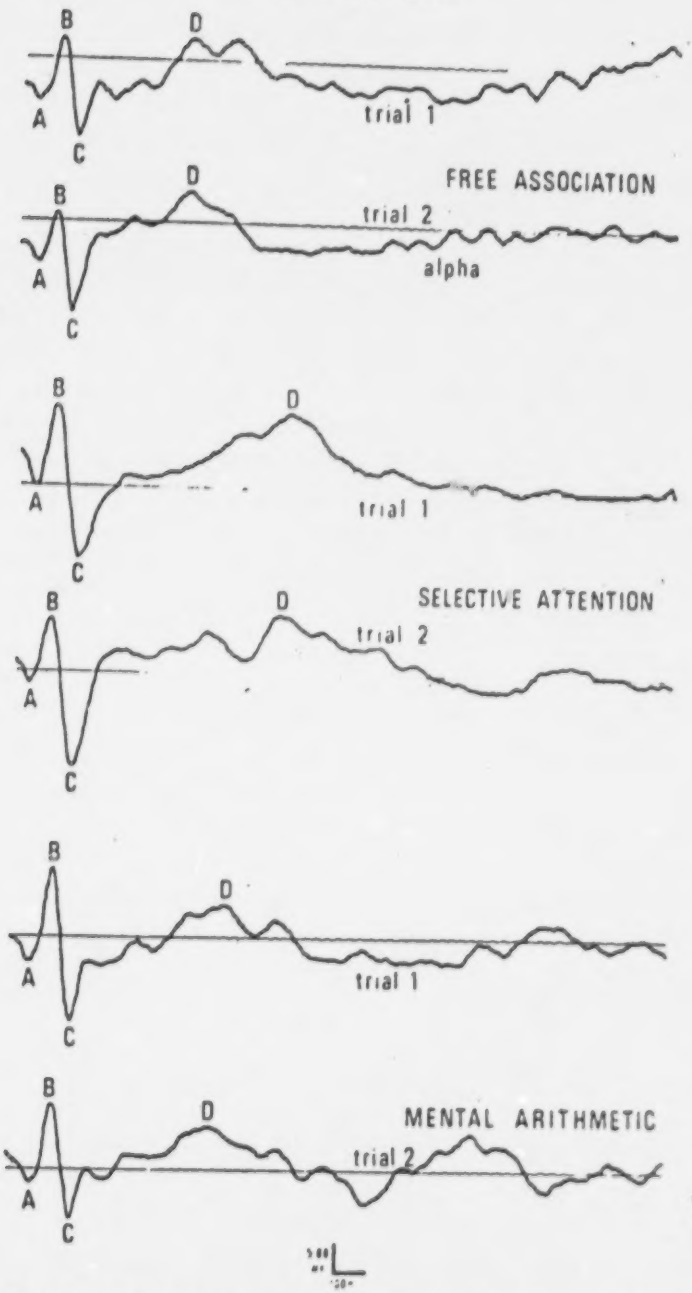

FIGURE 5. Set of 6 AER curves obtained from Subject A, 13-year-old male fraternal twin; each curve is based on 40 sweeps. Points A, B, C, and D mark peak amplitudes analyzed in study. Incidence of α bursts noted wherever present during last 1,000 msec. Baseline estimated from last 500 msec. of record.

to inquire if average evoked responses might reveal the presence of a brain response to a subliminal stimulus.

The Second Study: Visual Evoked Response Correlates of Unconscious Mental Processes (Shevrin and Fritzler, 1968a). This experiment was appealing not only because of empirical considerations but also because of an important theoretical consideration. Elsewhere I have hypothesized that the existence of subliminal perception forces us to assume that attention can be unconscious, and that a concept of neutral registration which does not involve attention and motivation is untenable (Shevrin, 1968). It was argued that perception implies attention, whether it be conscious, preconscious, or unconscious. No perceptual process is possible without a prior and concomitant act of attention. From this point of view, the "sense-organ" concept of consciousness as dispensing or withholding attention is too limited. Incongruous as it sounds, attention can be dispensed unconsciously as well, but the idea is no more incongruous than that of unconscious perception itself. In a posthumously published paper, Rapaport suggested something quite similar: "Nothing can be perceived—whether such perception is indicated by the consensually validated consciousness of the perceived or by the symptoms consisting of impingements upon other cognitive experiences—without its being so hypercathected. Thus *attention cathecting does not per se guarantee consciousness* or the form of conscious appearance of the internal or external excitation" (1959b, p. 781; italics added). Subliminal perception would be one class of perceptions whose presence is revealed by "impingements upon other cognitive experiences" and as such has been cathected with attention but has not become conscious.

The fact that the evoked response is associated with attention thus provides a means for testing this theoretical construction concerning unconscious attention. If the idea is valid, the average evoked response should show an increase in amplitude associated with attention whenever a subliminal stimulus had been attended to unconsciously. Furthermore, if we are dealing with something beyond a primitive sensing process, such as an orienting response, we should be able to find associates to the subliminal stimulus in free associations. If both hypotheses are

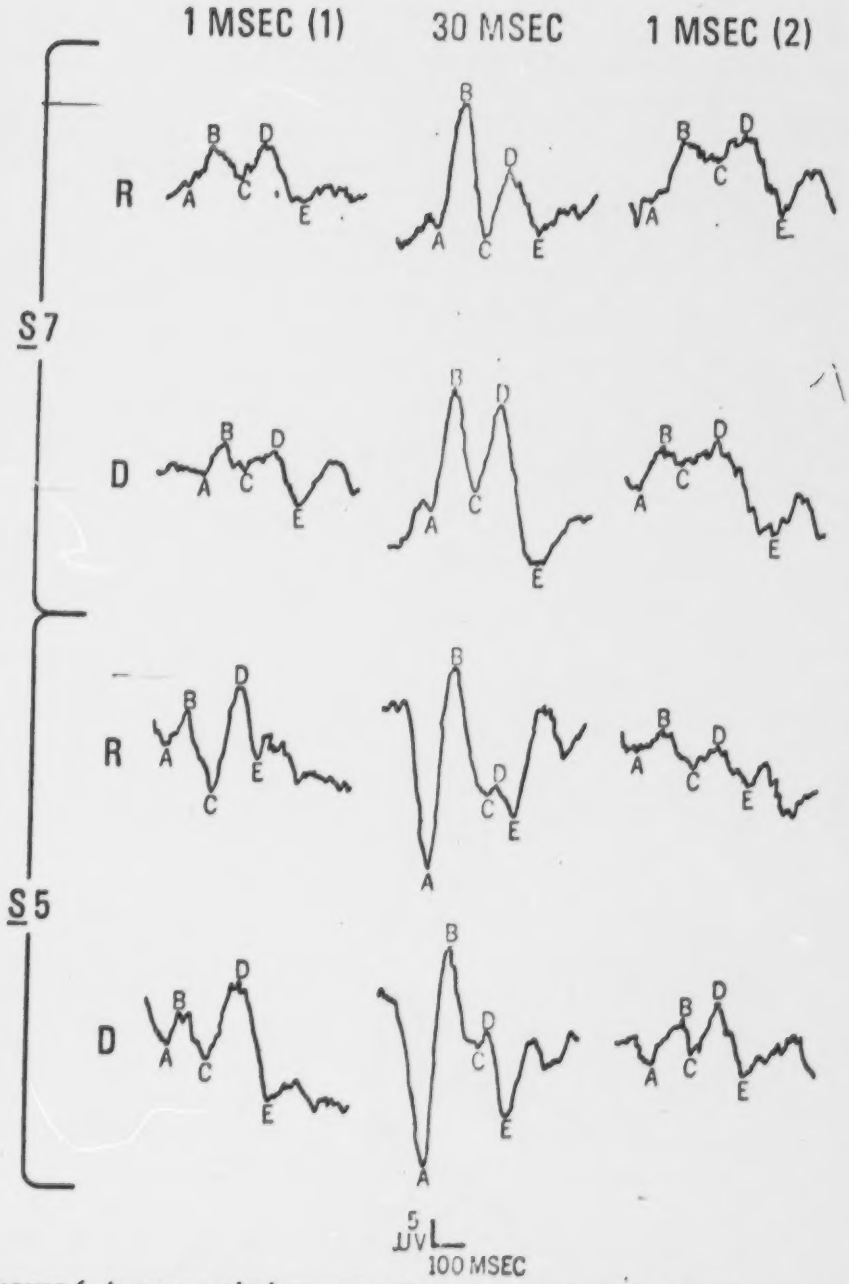

FIGURE 6. Average evoked responses (from Subjects 7 and 5 drawn from study by Shevrin and Fritzler, 1968a) as recorded from frontal-occipital electrodes for each exposure condition and for each stimulus, R and D. Average evoked responses are based on approximately 30 sweeps for each curve. Positive polarity downward.

confirmed, it could then be argued that the average evoked response is associated with an unconscious act of attention and perception which represents the starting point of an unconscious thought process revealed in free associations.

In order to make the test as rigorous as possible, the average evoked response technique was given the task of discriminating between two stimuli matched for size, color, general configuration, and brightness, but differing in specific content (Figure 1 above). In this respect the procedure was different from that of Libet et al. (1967), who found average evoked response correlates for somatosensory stimuli of subthreshold *intensity*. Our interest was in the *content* and *quality* of thought processes. Pribram, Spinelli, and Kamback (1967), working with monkeys, had already reported that average evoked responses could discriminate between a circle and striations, each presented for 1 msec. In our study, the two stimuli were presented for 1 msec., for 30 msec., and again for 1 msec. In each condition the PEN/KNEE rebus (Stimulus R) was flashed for a total of 30 times and its matched control (Stimulus D) 30 times in a modified random order. Between blocks of 10 stimulations—5 Rs and 5 Ds—free associations of 2 minutes' duration were obtained for a total of 12 minutes for each of the three conditions. The two stimuli were both flashed within one block in order to control for possible habituation effects. Since the main purpose of the experiment was to see if a brain discrimination could be found, we were ready to sacrifice to some extent the possibility of establishing verbal effects, for both stimuli would have been flashed before obtaining each series of free associations. As will be shown later, however, it is possible to identify some subliminal verbal effects in this experiment, and we have in subsequent work established verbal effects following the *separate* flashing of the rebus and control stimuli. At 1 msec. subjects saw nothing of the stimulus; at 30 msec. they could distinguish between the two stimuli, although they still found it difficult to recognize them. The subjects were 11 male undergraduates. The electrode display was bipolar: frontal-occipital. The occipital electrode was placed 2 cm. to the left above the inion. The frontal electrode was placed close to the hairline at the midline.

We found that the average evoked response discriminated

between the stimuli with equal effectiveness whether the stimuli were subliminal or supraliminal, although the effect was strongest in the first 1 msec. condition ($F = 11.58$, 1/10 *df*, $p < .01$). Moreover, the main discriminating component was within the poststimulus time interval associated with attention in other studies (approximately 250–300 msec.). Average evoked responses for two subjects are shown in Figure 6. The main discriminating component is the positive-going amplitude from B–C.

Both rebus and conceptual verbal effects were found in the free associations for the first 1 msec. condition on the basis of the following method: the approach to measuring subliminal verbal effects was developed in a series of other studies in which it was found that more associates appeared to a stimulus which was not consciously discriminated than to the same stimulus when it was consciously discriminated (Shevrin and Luborsky, 1958, 1961; Spence, 1964; Spence and Holland, 1962). Spence has referred to this factor as the "restrictive effects of awareness." On the basis of these findings, we hypothesized that more associates would be given following the 1 msec. stimulus exposures than following the 30 msec. exposures. This comparison of verbal effects following two exposure conditions was made necessary by the fact that both stimuli (R and D) as mentioned previously were flashed within each block of trials before free associations were obtained. Both stimuli were presented within the same block in order to maximize AER discrimination between the two stimuli by minimizing habituation effects. When this method was used we found that there were significantly more knee and penny associates in the first 1 msec. condition than in the 30 msec. condition (Friedman Test, $p < .01$, knee associates; $p < .05$, penny associates).

For the first time to my knowledge, both electrocortical and linguistic effects from a subliminal stimulus had been obtained. Would there be any correlation between these two seemingly diverse indices? We found that the incidence of conceptual associates was positively correlated with both the B–C amplitudes for R and D for the first 1 msec. condition. The best estimate of both indices was provided by a combined conceptual effect (pen and knee associates) and a combined R and D amplitude score. The resulting rank-order correlation was .70 ($p < .05$). Neither rebus nor clang effect was significantly correlated with ampli-

tude. However, when the incidence of alphalike activity approximately 1.5 seconds poststimulus (comparable to the alpha found in the first study) was measured, it correlated significantly with both rebus and clang effects (.75, $p < .01$, and .73, $p < .02$, respectively). The correlations with the conceptual effects were now nonsignificant. It would appear that the parameter of the average evoked response associated with attention is also associated with a secondary-process subliminal effect, while another average evoked response parameter, alpha, is associated with a primary-process subliminal effect. The fact that these findings are present for both the R and D responses suggested that we may be dealing with a stable *state* rather than with specific transient effects.

The Third Study: Average Evoked Response and Verbal Correlates of Unconscious Mental Processes (Shevrin, Smith, and Fritzler, 1971). In this replication a number of refinements in measuring average evoked responses were introduced. The subjects were again 12 pairs of twins, a choice which was especially useful for the investigation of repressiveness to be described below. The main findings from this study confirmed what had been previously found. Moreover, this time all effects were specifically linked to stimulus R: (1) the B-C amplitude was significantly greater for Stimulus R than for Stimulus D in the first 1 msec. condition and in the 30 msec. condition; this difference was found on the basis of two different criteria for identifying the B-C amplitude, described in detail elsewhere (Shevrin, Smith, and Fritzler, 1971) (sequence method: $F = 6.033$, 1/10 *df*, $p < .05$; peak amplitude method: $F = 10.477$, 1/10 *df*, $p < .01$); (2) knee associates were significantly more numerous in the first 1 msec. condition than in the 30 msec. condition (Friedman Test, $p < .05$); (3) the incidence of knee associates was a function of the B-C amplitude for Stimulus R only (sequence method, Wilcoxon Signed Rank Test, $p < .05$); (4) the incidence of penny associates was a function of alpha for Stimulus R only.

RELATIONSHIPS WITH REPRESSIVENESS

From a metapsychological point of view my references to unconscious thought processes have been equivocal. It would be

more correct to say that the electrocortical and verbal effects thus far described are *descriptively*, rather than *dynamically*, unconscious. We do not know as yet if we are dealing with dynamically unconscious processes. The evidence that rebus effects are present does suggest that primary-process transformations of a sort associated with dynamic unconscious phenomena occur. However, there is no direct evidence of the kind of defensive activity associated with dynamically unconscious processes. Defensive activity might well be influencing the evoked response and subliminal effects, but we have no independent assessment of its presence. If we infer from the existence of clang and rebus effects both the existence of primary-process thinking and the operation of defenses, we are in danger of circularity.

However, there is a way in which an independent assessment of defensive activity can be made, although the approach still remains at some distance from the actual focus of such activity. I refer to the clinical assessment of defenses on the basis of psychological tests. At the heart of this diagnostic assessment are certain assumptions about the long-term effects of a defense upon thinking, reality testing, and character formation. For instance, a person who relies mainly on repression will show a pervasive lack of interest in ideation, know less about the world then his general level of intelligence would lead one to expect, and show a readiness to respond overemotionally to circumstances. When we have evidence for these traits on psychological tests we infer that the person characteristically relies on repression as a defense. It is important to stress that rarely do we have direct evidence of actual repression, that is, individual instances of repression. In effect, we make the inference on the basis of a probability model: given these characteristics, it is highly likely that the person relies on repression more often than on other defenses and more often than do people who are dissimilar in these respects. For this reason it is better to talk about *repressiveness*, that is, a *tendency* to repress, than about repression, that is, actual instances of repression. This is in principle no different from what any experienced clinician does in the course of a clinical examination. Tests make it easier to compare different people because they are administered and scored in a uniform and systematic manner.

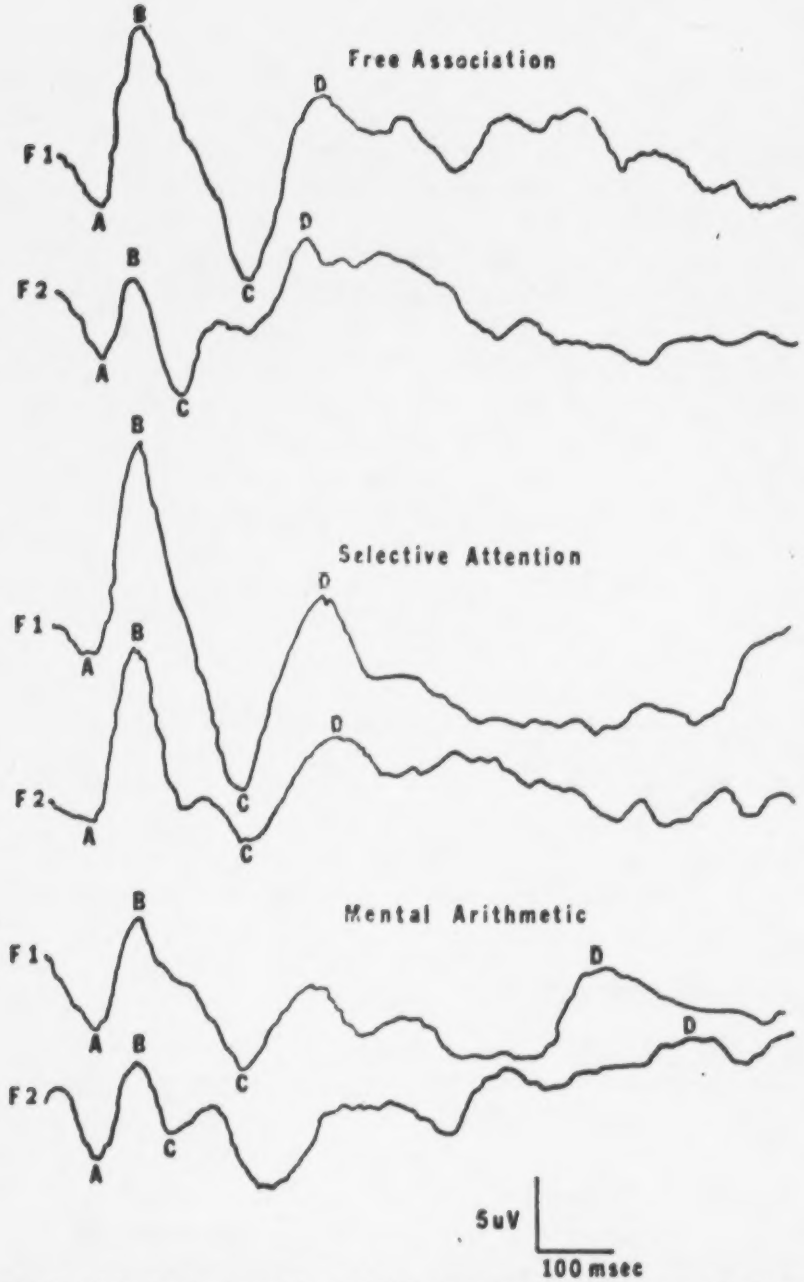

FIGURE 7. AERs for two nonidentical female twins, aged 16 years, 10 months. Upper curve in each pair is from the more repressive twin who was rated 8 for repressiveness as compared to her sister's rating of 5 (both ratings on an 0-10 scale). Components A-B and B-C are appreciably greater for the more repressive twin. Component D, which for the group as a whole is smaller in the more repressive twin, is not as clearly different in this particular pair. The differences between twins in amplitude for the early waves are approximately the same regardless of conditions; this is reflected in the absence of significant interactions of repressiveness and group with conditions.

As has been noted, the subjects in the first experiment were twins who had already been studied intensively by Gardner. They had been rated for repressiveness on the basis of the Rorschach, Wechsler-Bellevue, and several stories from the TAT. It was possible to select two groups of twins: one group of five pairs who were markedly different in repressiveness and another group of five pairs who were rated as identical in repressiveness. The discrepant pairs were of special interest and were designated as the experimental group. The electrocortical and subliminal verbal data were then analyzed on the basis of the repressiveness factor (Shevrin and Fritzler, 1968b). What we found was startling. In each case the repressive twin showed a *greater* amplitude of response in the early components than did the nonrepressive twin. However, for the later D component the reverse was true (Table 2). In Figure 7, average evoked response curves

TABLE 2
AER AMPLITUDE COMPARISON (IN μV) BETWEEN HIGH REPRESSIVE (HR) AND LOW REPRESSIVE (LR) TWINS

AER Components	A-B				B-C				D (to baseline)			
	HR	LR	t	p	HR	LR	t	p	HR	LR	t	p
Experimental Group (N=5 pairs)	12.64	10.92	2.73	.01	17.93	11.74	5.52	.001	4.50	6.86	2.95	.01
Control Group (N=5 pairs)	9.87	9.77	0.159	n.s.	11.20	11.87	0.598	n.s.	6.23	5.68	0.688	n.s.

for a pair of 16-year-old, nonidentical female twins are shown. The upper curve in each pair is from the repressive twin. In Table 2 the means and probability levels are summarized for the main average evoked response components.

It was also found that subjects who had shown the pen subliminal verbal effect were significantly less repressive than subjects who had shown no such pen effects. Subjects high in the subliminal verbal effect showed a diminished evoked response to the external tactile stimulus and were rated as relatively unrepressive. Or, we could say that these subjects could with relative ease shift attention from outside to inside. The repressive personality, on the other hand, finds this shift harder. In fact, we assume that

he shifts attention in the opposite direction—from inside to outside for dynamic purposes. This makes good clinical sense, and the combined evoked response and subliminal findings provide reasonably objective support for this clinical view.

However, the increase in some evoked response components and a decrease in a later component seemed at the very least puzzling. In our earlier study we suggested that the D component may be associated with brain processes underlying the verbal responses involved in judging a time interval between successive stimuli and thus may be closely related to judgment and discrimination, whereas the earlier waves might be more closely related to attention. The *decrease* in the D wave for the more repressive subjects may thus be a function of diminished ideational activity. The repressive person intensifies his attention to the stimulus at the expense of thinking about it. One consequence of this inverse relationship may be the concreteness of thinking usually associated with repressiveness. The repressive person may be "caught up" in the perceptual reality of the stimulus while ignoring its connotative implications. He is likely to miss the forest for seeing the trees.

In the Shevrin and Rennick (1967) study we were dealing with a neutral supraliminal stimulus. Subjects were aware of the tap to the index finger and it was by no means a highly charged or meaningful stimulus. What would happen if the stimulus were subliminal and meaningful?

The answer to this question could be obtained by correlating repressiveness ratings with electrocortical amplitudes and free-association verbal effects in the two subliminal studies previously described. In the first subliminal study (Shevrin, Smith, and Fritzler, 1969) repressiveness correlated *negatively* with the early amplitude associated with attention which had discriminated between the subliminal rebus and matched control stimulus. However, the correlations were equally negative for both the meaningful and neutral stimulus. At the supraliminal speed (30 msec.) the correlations became positive, although smaller: the correlation between repressiveness and the average evoked response amplitude for the rebus at the subliminal speed was –.59 ($p < .10$), and at the supraliminal speed it was .49 (*ns*). For the control stimulus the same correlations were –.62 ($p < .10$) and .31

(*ns*). Again we found that in this study R and D acted alike, as if some general factor were at work. All correlations between repressiveness ratings and the subliminal verbal effects were negative. For the first 1 msec. condition the rank-order correlation between knee associates and repression was -.90 ($p < .01$).

In the third experiment (Shevrin, Smith, and Fritzler, 1970), in which the same twin design was used as in the Shevrin and Rennick (1967) experiment, a negative relationship was found between repressiveness and the amplitude for the rebus stimulus only. The nonrepressive twin had a significantly greater response to R than to D as compared to the repressive twin in each pair ($t = 2.453$, df 15, $p < .05$, one-tailed test). Thus, the finding for the meaningful stimulus was replicated. Negative relationships between repressiveness and verbal effects were also present. For the first 1 msec. condition, nonrepressive subjects had more penny associates than repressive subjects (Wilcoxon Signed Rank Test, $p = .05$), and more pen clangs (Wilcoxon Signed Rank Test, $p = .05$). The rebus effect (penny associates) was significantly weaker in the repressive twins than in the nonrepressive twins. Although the relationship between repressiveness and amplitude became positive at 30 msec., it was weaker than in the other two studies. We were unable to obtain a clear replication of this finding at supraliminal speeds.

The pattern of findings with respect to repressiveness is an interesting one: within a fraction of a second (by 260 msec.) the cortical evoked response is already influenced by a repressive factor which is associated with a reduction in the amplitude of a component related to attention. Moreover, the evoked response to a meaningful subliminal stimulus is more definitely influenced than the evoked response to a neutral stimulus. There is a tendency for repressiveness to be associated with an increase in amplitude for supraliminal stimuli. Finally, repressiveness is negatively related to subliminal verbal effects.

Although the evidence is not conclusive, this pattern of findings strongly suggests that specific acts of repression are involved. It is still conceivable that some other general factor, like a diminished responsiveness to stimuli, accounts for these findings. An explanation of this type would encounter difficulty in dealing with the findings from the first study in which an *in-*

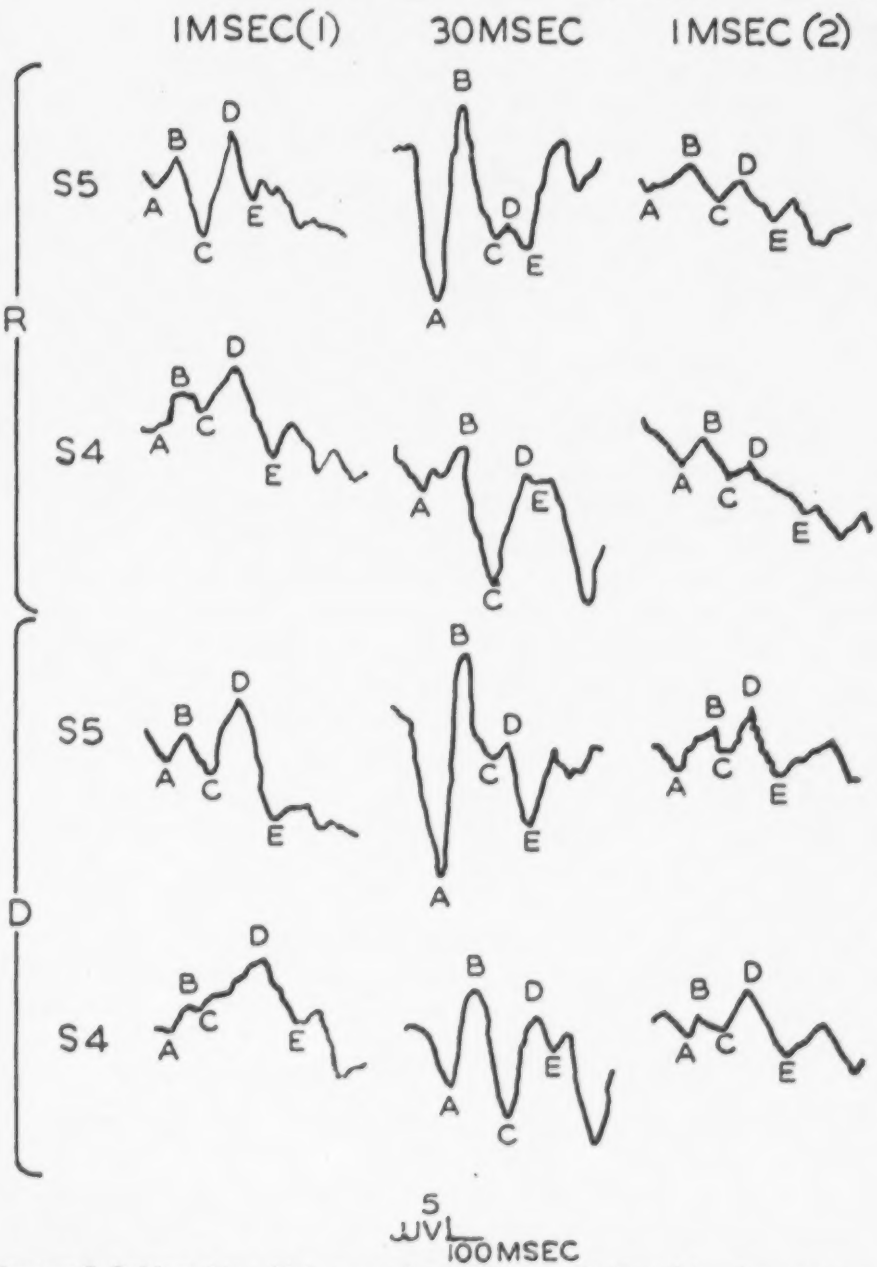

FIGURE 8. Subject 4 is a high repressive subject and Subject 5 is a low repressive subject. The BC component is lower for the PEN/KNEE rebus (R) for Subject 4 than it is for Subject 5 in the first 1 msec. series. The same BC component for the 30 msec. series is slightly larger for the high repressive as compared to the low repressive subject. For the stimulus D the BC component for Subject 4 is absent; the designations assigned on the curve are arbitrary, although they follow certain rules which are applied to all of the curves. Note that the effects diminish in the second 1 msec. series.

crease in responsiveness was present. This finding, however, was not cleanly replicated in subsequent studies. But, more important, an interpretation of this kind would be hard put to account for the relationships to the Rorschach ratings of repressiveness, which depend as much on certain kinds of *increased* responsiveness (e.g., to color) as on *decreased* responsiveness (e.g., fewer responses in general). This parallels the clinical view of repression as in general involving greater availability of affect than ideation.

The findings cited thus far hold true for groups of subjects at acceptable levels of statistical significance. These findings will now be illustrated by the responses of two subjects drawn from the first subliminal study. The curves of a high repressive (S4) and a low repressive (S5) subject are shown in Figure 8. Both are young men, undergraduates in their early twenties. The repressive set of curves is considerably reduced in amplitude for the first 1 msec. series as compared to that of the nonrepressive curves. There is also a tendency for a reversal to occur in these relationships for the 30 msec. condition.

The high repressive subject used considerably fewer pen, knee, and penny associates in the first 1 msec. series of free associations than did the low repressive subject. The high repressive subject's free associations were briefer and contained more references to affect. For example:

Joke . . . *frustration* . . . consistent . . . job . . . *strain* . . . nothing . . . time . . . curiosity . . . *crazy* . . . movement . . . chair . . . question . . . *laugh* . . . insight . . . head . . . others . . . reaction . . . panel.

The low repressive subject's associations were relatively impersonal and unemotional:

Money . . . science . . . sleep . . . bed . . . sheet . . . post . . . springs . . . radio . . . cigarette . . . Pepsi . . . glass . . . ice . . . magazine . . . hello . . . sweat shirt . . . pajamas . . . loafers . . . socks . . . picture . . . frame . . . cloth . . . metal . . . beer . . . can . . . pitcher . . . glass . . . cardboard . . .

Their Rorschachs were strikingly different. The high repressive subject gave half as many responses as the low repressive subject, yet he gave twice as many responses involving color. His performance was marked by much ready affect and a relative constriction of ideation. To Card II, which contains prominent red areas, he responded with laughter, saying, "Oh, I wish you didn't have to make everything so difficult in the morning!" His two responses to the card were: (1) "Two dancing bears" (said loudly and followed by laughter); (2) "A spaceship."

The low repressive subject was unemotional in his responses to the cards. He gave six responses to Card II: (1) "Two monks kneeling, pressing their hands together," (2) "The red part down here could be a butterfly," (3) "or someone's throat," (4) "and it could represent a jet plane being blown up from the rear with a heat-seeking rocket," (5) "and it might represent a Cheshire cat"; (6) "It might also be some sort of demon or devil—some fantastic creature—strange-looking."

A clinician might be tempted to consider the low repressive subject an obsessive-compulsive personality relying on such defenses as intellectualization, isolation, and reaction formation.

DISCUSSION

The combined subliminal and evoked response methods used in the experiments described in this paper may make it possible to investigate a number of issues heretofore not readily amenable to laboratory study: (1) primary- and secondary-process thinking; (2) the relationship between attention and defenses; (3) psychodiagnosis; (4) psychotherapy research.

1. PRIMARY- AND SECONDARY-PROCESS THINKING

The potential usefulness of the method is nowhere better illustrated than in the findings showing that primary- and secondary-process thinking are associated with different AER parameters. The capacity to discriminate between these two levels of thought organization opens up exciting prospects for studying the psychopathology of thinking. This prospect is especially inviting because the method does not depend on complex levels of

clinical inference or intuition (as do therapy records or psychological tests), while staying close to the nature of the phenomena themselves. Apparently, the same subliminal input may be "processed" in a rational, veridical way and in an irrational, unrealistic way. High amplitude of evoked response in a component occurring within the first 260 msec. poststimulus is associated with conceptual-level effects, whereas bursts of alpha occurring at 1.5 sec. poststimulus are associated with clang and rebus effects. Shevrin and Fisher (1967), in their study of the relationship between subliminal stimulation and the sleep-dream cycle referred to earlier, also reported findings which require the assumption that the same subliminal input can be processed on different levels of thought organization which then become conscious in either REM or NREM sleep. If we put the findings from this sleep-dream study together with the findings described in this paper, we can hypothesize that shortly after the subliminal stimulus is flashed the stimulus content is processed and stored in two memory banks, one organized on the basis of secondary-process thinking and the other on the basis of primary-process thinking. Subsequently, when the sleeper enters into stage 1 REM sleep, the "primary-process" memory bank is mainly drawn upon, whereas during stage 2 NREM sleep the "secondary-process" memory bank is mainly drawn upon. The two conditions of thought are apparently separated into different systems of information processing, although in most naturally occurring behavior the two forms are intermingled. For example, in the free associations collected in the experiments, conceptual, clang, and rebus-related words occur in the same stream of thought. The subject might explain (we might say, rationalize) these associations, having such different origins in thought, on some reasonable basis; yet before their appearance in the stream of associations they have been processed in different ways.

2. ATTENTION AND DEFENSES

This topic is much too complex to examine fully in this context. Comments will be limited to the role of attention with respect to repressive defenses. First, the evidence presented makes sense if it is assumed that attention is not limited to conscious-

ness. In the "sense-organ" conception of consciousness, attention is controlled by this superordinate structure: when attention is withheld, a content is presumably kept out of consciousness; when attention is invested in a content, it attains consciousness. But once it is assumed that attention itself can be in the service of *non*conscious structures, the "sense-organ" conceptualization must be radically transformed. For example, when attention is in the service of conscious structures, as in the study involving a supraliminal tactile stimulus, repression is supported by an *intensification* of attention to an external stimulus and a *diminution* of thinking about the stimulus. When attention is in the service of unconscious structures, repression is supported by a *diminution* of attention associated with an *inhibition* of ideation related to the subliminal stimulus. The repressive personality does not uniformly withhold attention in the service of repression. But attention is withheld or invested depending on whether the repressive aim can best be served by *intensification* or *diminution* of attention (H. Schlesinger, 1964). This distinction could perhaps be expressed by referring to the intensification of attention with respect to supraliminal neutral stimuli as *avoidance*, and reserving the term *repression* for the diminution of attention to subliminal inputs. Although the subject may be aware of intensifying his attention to the supraliminal tactile stimulus, one important reason for doing so—to avoid anxiety-arousing ideas—remains unconscious. With respect to subliminal inputs, the entire process is unconscious. According to this view, attention is available to unconscious ego structures, and drive-organized motivational structures can directly mobilize unconscious attention for purposes of subliminal perception. Moreover, at the very start of this subliminal perceptual process, defensive factors may already be at work. Within a fraction of a second a repressive damper is placed on the developing attentional and perceptual processes. Thereafter the consequences in thought are further controlled by repressive or ideational defenses. All of this can take place with awesome rapidity, although the final outcome in some overt response may be considerably delayed. Fisher (1956) suggested this possibility early in the work on subliminal perception.

From an empirical standpoint, one significant weakness of this formulation is that the method does not permit the independent

assessment of *unconscious motives.* We do have an independent assessment of subliminal attention, perception, ideation, and repressiveness, but we do not have any idea about the prevailing motives at work which necessitate avoidance and repression. We can, of course, speculate that they must be related to the sexual and/or aggressive implications of the stimulus, but this approach does not provide an *independent* assessment of unconscious motives. We can fall back on the tests, but there too it is not always easy to distinguish between the defense and what specifically is being defended against. We are in need of a methodological innovation which would most likely involve the manipulation of drive states—a hazardous undertaking.

3. PSYCHODIAGNOSIS

We are always in search of refinements in diagnosis, especially those that offer either more efficient or more unambiguous alternatives to what we have. It is not proposed that the method described here is ready for diagnostic application. The Rorschach, the other psychological diagnostic tests, and a good clinical examination are still our best means. But it is conceivable that, with further work and increased understanding, the evoked response method linked with subliminal stimulation will provide a useful adjunct to diagnosis, especially with respect to such part processes as attention, perception, and their interactions with personality factors.

4. PSYCHOTHERAPY RESEARCH

Related to diagnostic issues is the assessment of change as a result of treatment. In the absence of reasonably reliable and objective indications of change, it is difficult to convince the scientific community of the value of expressive psychotherapy and psychoanalysis. It is, of course, necessary to rely on the best methods we currently have, which are mainly clinical evaluations, psychological tests, and ratings of various kinds. At some point in the future, however, it may be possible to assess shifts in defensive organization from a more to a less repressive orientation by evoked response and subliminal stimulation methods.

The advantage of these methods would be in providing a means for assessing defensive shifts entirely independent of clinical evaluation and judgment. This development still lies some distance in the future, but perhaps the distance is less than we have heretofore imagined.

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BRAIN WAVE CORRELATES OF SUBLIMINAL STIMULATION, UNCONSCIOUS ATTENTION, PRIMARY-AND SECONDARY-PROCESS THINKING AND REPRESSIVENESS

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EVOKED POTENTIAL EVIDENCE FOR UNCONSCIOUS MENTAL PROCESSES: A REVIEW OF THE LITERATURE*

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This review will draw together a small, scattered but theoretically significant group of evoked potential studies bearing on the evidential base for the psychoanalytic concept of the unconscious and its relationship to consciousness. These studies, most of which were not undertaken with the psychoanalytic concepts of the unconscious in mind, nevertheless speak to its possible neurological correlates. It will first be necessary to sketch the main outlines of the psychoanalytic idea of the unconscious and its relationship to consciousness, following which the experimental studies will be described and evaluated. The paper will conclude with a discussion of the implications of this research for the psychoanalytic concept of the unconscious.

The Psychoanalytic Concept of the Unconscious

Every science is defined by its interest in a particular phenomenon whose understanding comprises its fundamental task. In physics, the phenomenon is matter in motion; in chemistry, the transformation of physical substances; in biology, the activity of living organisms. Psychoanalysis began with a series of observations on behavioral, emotional, and cognitive changes following emotionally significant reminiscence. The subsequent history of psychoanalysis can be characterized as an elaboration of these observations on the basis of a clinical method developed to explore the conditions under which this phenomenon occurs and the conditions which impede its emergence or modify its character. For example, Freud discovered that the patient's way of experiencing his relationship to the analyst (transference) often signalled the nature of the experiences affecting his current life of which he was unaware and which were related to childhood events. By calling the patient's attention to this relationship and «interpreting» its significance, which meant demonstrating its current impact and its genetic roots, the patient was then

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led to recall heretofore forgotten experiences which marked the beginning of the particular maladaptive pattern under scrutiny.

For our purposes it makes sense to return to the earliest observations because they are least influenced by subsequent conceptualizations and theories and we may thus gain a clearer idea about the nature of the phenomenon itself. In the case of Anna O. Breuer reported that odd behavior, appearing sporadically in the course of her daily preoccupations, often disappeared following the recall of certain experiences. This recall was made possible by an altered state of mind in which she had remarkable access to memories apparently unavailable to her in her normal state (Breuer and Freud, 1895). To Breuer this altered condition appeared similar to hypnosis and he referred to it as a state of autohypnosis. The account of his largely improvised treatment contains many illustrations of this process. At one time, Anna O. complained to him that a dress she was wearing looked blue to her although she knew it was in fact brown. Later that day in her altered, or autohypnotic state, she recalled that a year before she had made a dressing gown for her ill father out of the same material as her dress except that the material for the dressing gown was blue. Her relationship to her father was of considerable emotional significance to her and had already been implicated in other symptoms. Once this recall occurred the false perception disappeared. How can we account for this phenomenon? A cognitive disturbance in one state is altered by a reminiscence in another. Breuer hypothesized that the memory of the blue dressing gown was somehow active during the normal state and produced the cognitive disturbance: it was in a condition of unconsciousness, but nevertheless actively creating a disturbance.

Once this hypothesis is entertained it raises new questions: 1) Why is the memory not available to normal consciousness especially if it is emotionally significant?, 2) What happens to a memory when it is unconscious?, 3) How does it affect conscious experience? Efforts to answer the first question led to the concept of repression and its more general form, the defense mechanisms; efforts to answer the second question led to the concept of primary process ideation: the mental life that is kept from becoming conscious follows different principles of organization than mental life readily available to consciousness; efforts to answer the third question led to models for symptom formation, dreams, parapraxis, humor, and psychotic thinking.

As Rapaport (1967) has pointed out the concept of the unconscious in psychoanalysis is a corollary of a basic assumption: the existence of psychic continuity. Anna O's misrecognition was not simply a random, non-psychological event; rather, it could be u n d e r s t o o d once we become aware of all that was involved for her psychologically, which was supplied by her in her altered state. Psychic continuity is by definition individual and historical: it is always one particular individual's continuity unique to him and made up of a unique sequence of events. What is d i s c o n t i n u o u s in conscious experience (e. g., a brown dress «looking» blue) is actually c o n t i n u o u s once we become aware more completely of the individual's

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experience. Therefore, the concept of the unconscious follows from this assumption of psychic continuity: it refers to those mental events not currently available but which must be assumed to exist in order to account for the underlying continuity.

There can be different conceptions of the nature of psychic continuity. For example, Breuer believed that what was unconscious were d i s s o c i a t e d altered states, much as he observed in his patient, and that hysteria could be accounted for by the examination of these etiologically significant h y p n o i d s t a t e s. By contrast, Freud emphasized m o t i v e s, insisting that a person had to have a «reason» for keeping something out of consciousness and that this «reason» was a m o t i v e. He would have supposed that for Anna O. it would have been disturbing to acknowledge the nature of a close relationship to her father; therefore, she had to keep the memory of the dressing gown out of consciousness but that it persisted in some way and influenced at one point her conscious experience. From Freud's point of view, a motive was a necessary but not sufficient condition for repression. It made repression necessary, but repression itself required a mechanism of some kind for bringing about unconsciousness.

The assumption of a psychological unconscious is a distinctive and unique characteristic of psychoanalysis. However, psychology has done without this assumption before psychoanalysis and in many quarters still does. William James (1890) was scathingly critical of the notion of an unconscious and suggested a point of view involving rapidly alternating states of consciousness as in multiple personalities. Further, he denied the postulate of psychic continuity by asserting that what appears nonsensical and unaccounted for by the usual rules of thought (e. g., seeing a brown dress as blue) was likely due to some temporary aberration in the nervous system. In fact he accounted for the bizarre connections in dreams as due to deficiencies in the nutrition of the underlying neurophysiological processes. There was thus no p s y c h i c c o n t i n u i t y, but an intrusion of physical events directly on the mental; at best there is a complex psychophysiological continuity in which different principles, working independently (e. g., nutrition of the nervous system), randomly interfere with each other. In this system there is no place for an individual, historical consideration of mental events. Modern behaviorism is essentially the heir of this viewpoint: the way to modify behavior is to e x t i n g u i s h a response. Extinction is a neurophysiological concept having to do with a property of the nervous system not unlike James' «nutrition». In this system there is no need for a psychological continuity. It is thus of central importance to see if the psychoanalytic assumption of an unconscious rejected by other psychological systems can receive support from other quarters not concerned necessarily with issues of psychopatholgy or psychic continuity itself. For the psychoanalyst the unconscious is an intrinsic part of his method and as such untestable by the method istelf. It would be significant if there were independent support for the existence of unconscious mental phenomena. In addition, the use of other methods may throw a new

light on the nature of unconscious processes of which the psychoanalytic method itself is incapable.

Unconscious Processes and the Evoked Potential

In 1967, Libet et al., reported that a somatosensory evoked response can be obtained at the cortex when the subject is stimulated by a subthreshold electrical current to the skin. Although the subject consistently reported no sensation the evoked potential revealed a decided cortical response (Libet, Alberts, Wright and Feinstein, 1967). The brain could show cortical responsiveness in the absence of awareness. Libet and his colleagues believed their findings showed an early, p r i m a r y evoked potential which they hypothesized was associated with the subthreshold stimulus. They further speculated that consciousness as such was associated with a later, s e c o n d a r y component. The exact nature of the findings and the investigators' interpretation is best captured in their own words:

> With subdural recordings at a point on postcentral gyrus and with the locus for the skin stimulus matched to the referral from this cortical point, it was found that an average evoked potential could be detected with stimulus strengths that were distinctly below the lower limit for threshold-c (e. g., consciousness). That is, evoked potentials could be detected with skin stimuli which were well below the range of uncertainty and which never elicited any conscious sensory responses.... the evoked potentials produced by such single subthreshold-c pulses of the skin consist mainly of an initial or primary surface positive component... (1973, pp. 769-770).

It was also discovered by these investigators that a single pulse of relatively high current delivered to the thalamic postero-ventral nuclei will not produce a conscious sensory experience although a large evoked potential appears in the appropriate area of the somatosensory cortex (Libet et al., 1967). Libet concludes:

> It follows from these considerations, that the presence or amplitude of an evoked potential, particularly of the primary component, cannot be assumed to be an indicator of the occurrence or intensity of subjective sensory experience without other validation under the conditions of study... (1973, pp. 770-771).

Below we will consider other theoretical implications of Libet's work with respect to the conditions for conscious sensory experience itself.

In the same year as the Libet findings appeared, Riggs and Whittle (1967) published some provocative observations which have been largely ignored in the interim. The investigators were interested in finding out what accounted for the subjective disappearance of a stabilized retinal image. When eye movements are prevented experimentally from shifting the retinal image from one set of receptors to another there is a gradual fading and often a complete disappearance of a previously clear pattern. Their intent was to discover if disappearance of the visual pattern would be accompanied by a loss of electrical responses at the retina and at the occiput. The cortical evoked potential was obtained by the use of bipolar occipital electrodes, each placed 2.5

cm. to the right of the midline, one at the level of the inion and the other 6 cm. higher on the head. The stimulus was made up of black and white stripes alternating 47.4 times per second. Their surprising finding was that both the retinal and occipital EP's revealed *no* differences in latency, amplitude or rate under stabilized and unstabilized viewing. Peripheral and central electrical activity remained constant whether or not the subject was aware of the stimulus. As with Libet's finding, awareness and cortical evoked activity are not necessarily correlated. Riggs and Whittle summarized their findings as follows:

> The results with image stabilization may be summarized with a statement that no diminution was found to occur in the electrical responses evoked in either the retina or the occipital cortex. This generalization holds despite the fact that the subject reported a marked difference in the subjective appearance of the stripes under the two conditions. The stabilized condition produced a fading of the image that sometimes amounted to virtually complete disappearance. The persistence of the electrical activity was also found under a variety of conditions of stimulation with respect to frequency, intensity and wavelength (p. 445)... it is... natural to suppose that... signals are blocked at levels higher than that from which we record (p. 449).

Some years later Riggs (1976) speculated that these results pointed to a higher centre for consciousness. His speculations took him back to Descartes and the pineal gland. In an amazing leap over the centuries, Riggs vaulted over the Freudian concept of the unconscious for which the notion of cortical activity without consciousness would constitute no surprise.

In an earlier investigation of the stabilized retinal image relying, however, on the EEG and not on evoked potentials Lehmann et al., (1965) found convincing evidence that the subjective disappearance of the image was very likely brought about by a centrally paced signal taking the form of bursts of alpha. Just prior to the time the subject reports the image as faded or disappeared, there are bursts of alpha occurring in the EEG. The investigators conclude that «periodic fading of the stabilized retinal image is the result of central changes» (1965, p. 342). When we combine the findings from these two studies dealing with the stabilized retinal image, we can hypothesize that movement of the stimulus across the retina is a necessary condition for awareness of the stimulus but not of its information processing.

In a series of studies bearing directly on the relationship between the evoked potential and the psychoanalytic idea of the unconscious, Shevrin and his co-workers have reported a number of findings in which the VEP was used (Shevrin and Rennick, 1967; Shevrin and Fritzler, 1968a, 1968b; Shevrin, Smith, and Fritzler, 1969, 1970, 1971; Shevrin, Smith, and Hoobler, 1970; Shevrin, 1973). The paradigm for this research was based on the phenomenon of subliminal perception (Dixon, 1971). A pair of visual stimuli matched for area, color, shape and contour but differing in attributable meaning was presented to subjects at subliminal speeds (1 ms; 3mlam luminance). It was hypothesized that the experimental stimulus, a picture of a pen pointing at a knee, would evoke a subliminally greater amplitude of response than the matched control, which was made up of abstract shapes lacking any meaning-

ful characteristics. This hypothesis was based on the assumption that an intrinsically interesting stimulus would excite greater attention; a number of evoked potential studies had already shown that attention was associated with increased evoked potential amplitude (Hillyard, 1977). It was found that a bipolar electrode display, occiput (2.5 cm. to the left and above the inion) to frontal (at the midline close to hairline), revealed a consistent difference at subliminal levels in the hypothesized direction. The differentiating amplitude was a positive going component peaking at approximately 160-180 ms. poststimulus. Note should be taken of the fact that this component is a late, secondary amplitude and does not fit with the Libet finding of an early primary component as the one associated with subthreshold stimulation. Nevertheless, in the absence of any awareness of the stimulus the subject showed a clear, differentiating evoked potential.

In addition to the subliminal findings the same stimuli were presented at 30 ms. under the same illumination. Subjects were able to differentiate the stimuli; although amplitudes and latencies were greatly increased, the same difference between the two stimuli was found. Thus at both sub- and supraliminal exposure times consistent amplitude differences were found that accorded with previous findings on attention.[1]

The experimental paradigm employed by Shevrin and his colleagues was distinguished by a unique assessment of associative thought processes instigated by the subliminal stimuli. This was important for two reasons: 1) the psychoanalytic concept of the unconscious was not simply a physiological one, but distinctly psychological — unconscious m e n t a l processes were involved, 2) as Uttal (1965) has pointed out the mere presence of a neurophysiological response may or may not be of cognitive relevance: the evoked potential may simply s i g n a l the existence of a process but not actually be related to its encoding. For both of these reasons it was necessary to show that the experimental stimulus elicited subliminal cognitive effects.

Fortunately, a considerable body of research on subliminal perception (Dixon, 1971) had already established that associations can be used to demonstrate subliminal cognitive effects. In particular, it has been found that the association networks activated by a subliminal stimulus are broader and more loosely connected than the networks activated by the same stimulus presented supraliminally. It was thus possible to hypothesize that the picture of the pen and knee would elicit m o r e associations subliminally than supraliminally, while no such difference should be found for the control stimulus. A reliable standard procedure for identifying such associations was developed. The hypothesis was supported in several experiments (Shevrin and Luborsky, 1958; 1961; Spence and Holland, 1962; Spence, 1964). More associations related to the experimental stimulus appeared sub- rather than supraliminally. Thus, it was demonstrated that the subliminal stimulus was not only s i g n a l l e d by a differentiating evoked potential but that the evoked potential was associated with cognitive effects related to the meaning of the stimulus.

As described in the opening section of this paper, the psychoanalytic concept of the unconscious requires that a) there be evidence of some d i f f e r e n c e in the nature of the unconscious thought processes as compared to conscious thought, b) that there be evidence of repression or defensive activity. With respect to the first point the Shevrin investigations already showed, consistent with other subliminal studies, that the association networks would be broader and looser in the subliminal condition. The experimental stimulus was constructed to permit another level of thought organization to be identified: this new level was based not on the c o n c e p t u a l use of language but on the concrete, p h o n e m i c use of words. Luria and Vinogradova (1959) have demonstrated that the semantic field changes from the conceptual to the phonemic under the influence of a mild sedative in normal subjects and in the usual functioning of the mentally retarded. Freud long ago posited that in a variety of conditions, psychological and normal, (dreams, the formation of neurotic symptoms, psychotic thinking, in early childhood, slips of the tongue, humor) the conceptual character of language is often lost and is replaced by concrete, phonemic association links. These phonemic links were instances of what he referred to as the p r i m a r y p r o c e s s in ideation. In the picture of the pen and knee it is possible to trace in the association process words conceptually related to the stimulus (e. g., pen: ink, paper; knee: leg, bone), but also phonemically related (e. g., pen: pennant, happen; knee: any, neither). Furthermore, the two words (pen and knee) form a new word (penny) unrelated conceptually to its constituents. It was found that conceptual and phonemic associations correlated with different parameters of the subliminal evoked potential. Conceptual associations correlated with a differentiating amplitude, while the clang level associations correlated with bursts of alpha-like activity approximately 1500 ms. post-stimulus. Primary process and conceptual or secondary process cognitive activity appear to be related to different parameters of the subliminal evoked potential. It was tempting to interpret this difference as paralleling the psychoanalytic distinctions between preconscious and dynamically unconscious mental processes insofar as the former are considered to be more characterized by conceptual thinking and the latter by primary process ideation.

One last finding from these investigations of some relevance to the distinction between a descriptive unconscious (preconscious) and dynamic unconscious remains to be described. It was found, as hypothesized, that subjects rated as highly repressive on the basis of the Rorschach had s m a l l e r subliminal evoked potentials to the experimental stimulus and associated f e w e r stimulus related words. There was thus some reason to believe that repressive forces may have been at work although the evidence was still indirect and inferential (Shevrin and Fritzler, 1968b; Shevrin, Smith, and Fritzler, 1969; 1970).

In an effort to replicate the Shevrin findings Schwartz and Rem (1975) introduced a number of differences from the original experimental paradigm: 1) the exposure time was increased to 3 ms. above the absolute threshold, 2) stimuli were presented in pairs rather than in blocks, 3) the stimuli within

the pairs were presented in a fixed time interval, one second apart, 4) no association data were obtained, 5) the task was changed from one requiring attention to a single stimulus presentation and description of what was seen to a discrimination task in which the subject was asked to judge whether the stimuli within a pair were the same or different. Subjects were presented with four different types of pairs: experimental-control; control-experimental; experimental-experimental; control-control. The same stimuli were used as in the Shevrin experiment. There were two findings, one negative and one positive. Schwartz and Rem did not find the amplitude difference reported by Shevrin and his co-workers. However, they did find that cross-correlations between the stimuli within pairs showed that the evoked potentials were significantly smaller for the experimental-control, control-experimental pairs than for the control-control, experimental-experimental pairings. These findings indicated that even though subjects were not making a better than chance discrimination (at 3 ms.), the evoked potentials were still differentiating between the experimental and control stimuli. Schwartz and Rem interpreted these differences as likely due to the minor structural differences between the stimuli rather than to the differences in content or meaning. In the absence of any means for determining meaning (i. e., no association method) this interpretation was open to doubt.

Shevrin (1975) pointed to a number of difficulties in the Schwartz and Rem experiment: in addition to significant differences in procedure, there were also some statistical difficulties that might account for the failure to find an amplitude difference. Schwartz and Rem, in a subsequent re-analysis of the data, found that indeed there was an amplitude difference between the experimental and control stimulus but that it was in the o p p o s i t e direction from that reported by Shevrin: the amplitude for the control stimulus was l a r g e r than for the experimental stimulus. It is of some interest to note that Rietveld (1966) has reported that with visual stimuli attention may have an anomalous effect on evoked potential amplitude depending on the difficulty of the task: when the task is difficult the evoked potential associated with the attended to stimulus d i m i n i s h e s, while in the simpler task it i n c r e a s e s over the evoked potential to the unattended to stimulus. By presenting the stimuli in pairs, one second apart, Schwartz and Rem may have significantly increased the difficulty in the attentional task and thus reversed the amplitude relationships found by Shevrin for the experimental and control stimuli. In any case, the null hypothesis cannot as yet be rejected that n o d i f f e r e n c e exists between the visual evoked potential amplitudes for the experimental and control stimuli presented either below the detection threshold (1 ms.) or below the discrimination threshold (3 ms.).

There is another group of visual evoked potential studies that cast some light on the relationship between the VEP and consciousness, although none of these studies was undertaken with this end in mind. Begleiter, Porjesz, Yerre, and Kissin (1973) employed an ingenious experimental paradigm to investigate the effect of e x p e c t e d stimulus intensity on the VEP. Following a training session in which subjects were asked to anticipate a bright

dim flash signalled by a different tone, medium intensity flashes were ibuted randomly among bright and dim flashes depending on the prepa- y signal. Half the medium flashes were preceded by the «bright» flash al and half by the «dim» flash signal. Electrodes were placed at the mid- 2.5 cm. above the inion and at the vertex. The left earlobe was used as rence. It was found that the evoked potentials recorded at the vertex were elated in amplitude with the e x p e c t e d stimulus intensity (bright lim) and not with the actual stimulus intensity (medium); while n o f e r e n c e was found at the occiput. The investigators interpreted these ılts to mean that a m e m o r y of a previous stimulus may be released by expectation. Why this was not found at the occiput was left unexplained. e difference between vertex and occiput is of more than passing inter- : it appears that at the occiput, that is, at the sensory receiving area an urate evoked potential is obtained, while at the vertex an expected (and accurate) EP is obtained. What was the subject «seeing» — the accurately corded stimulus at the occiput or the expected stimulus at the vertex? Unfor- nately no data is provided as to what the subjects actually reported seeing. he entire context of the experiment leads one to believe that they «saw» ıe expected stimulus. If so, then the occipital EP remained inaccessible to wareness and thus unconscious.

In a subsequent experiment, Begleiter and Porjesz (1975) employed a pro- edure that left little doubt that the subjects s a w a bright or dim light nd that their vertex evoked potentials were correlated with this perception ven though they were responding to a flash of medium intensity. Subjects were rewarded for correct discrimination of actual bright and dim lights among which the medium flashes were interspersed although subjects were led lo expect only bright or dim flashes. Thus, they reported s e e i n g a bright or dim flash when only a medium flash was presented. In this experiment no occipital electrode was employed so that replication of the occipital finding was not possible.

Three other experiments support the interpretation that evoked potential activity in the front of the brain is associated with what the stimulus «means» to the subject and what he may in fact be aware of. Johnston and Ches- ney (1974) presented subjects with a visual stimulus which could be seen as the number thirteen or the letter B depending on the context (e. g., flanked by the numbers 17 and 12 or by the letters P and E). Following a familiariz- ing series in which either letters or numbers were presented in random or- der, in an experimental session subjects were told that they would be seeing either numbers or letters and that their task was to name the numbers or letters as rapidly as possible. With the exception of one subject the remaining subjects had electrodes either 2.5 cm. above the inion at the midline or 2.5 cm. above the nasion. For one subject electrodes were placed at both locations. Differences between the same stimulus perceived as either letters or numbers were only found at the frontal location. Again, correct information available occipitally had no effect on what the subjects reported. Some process must

keep this information from affecting higher levels of cognition and apparently awareness as well.

Brown, Marsh and Smith (1973) found that the same word, «fire» evoked a different auditory potential over the speech area when it was used as a noun (e. g., «Sit by the fire») as compared to when it was used as a verb (e. g., «Ready, aim, fire!»). No such difference was found over the right hemisphere.

In an earlier study Weinberg, Walter, and Crow (1970) investigated the evoked potential to actual and imagined stimuli with the use of electrodes implanted in orbito-frontal and cingulate cortex as well as on the surface of the superior frontal cortex. They found that the evoked potential to actual flashes and clicks were similar to the evoked potentials when the subjects expected the stimuli but were in fact not stimulated. There was some evidence that what the investigators called the e m i t t e d (as contrasted to e v o k e d) potential had a shorter latency by some 25 ms. They conclude:

> From what we know about the nervous system there is no reason to assume that the experience of an image depends on the establishment of those processes originally involved in the registration and coding of the stimulus. However, an interesting implication of our observations is that an assumption of this nature might be a reasonable working hypothesis. The fact that emitted potentials correlate well with potentials which are evoked by stimuli suggests that the underlying electrophysiological processes which are initiated by stimulus presentation may be re-activated under appropriate conditions of motivation and set even in the absence of those stimuli (p. 6).

Again in this study no electrodes were placed in the sensory receiving areas, so we do not know if there would have been *no* emitted potentials found there.

There are two reports in the literature dealing with the evoked potential and hysteria. Hernandez-Peòn, Chavez-Ibarra, and Aguilar-Figueroa (1963) obtained evoked potentials from a fifteen-year-old girl suffering from a glove and sleeve analgesia and thermoanesthesia of the left arm. Electrodes were located in the midline of the vertex and one each in the parietal region at a midpoint between the ear and the midline. Whereas the unaffected right arm showed a clear evoked potential response to a pin prick, the hysterically affected left arm showed no clearly evident evoked potential, (although inspection of the curves [see figure 2, p. 890] supports a more ambiguous interpretation insofar as some low amplitude activity appears to be present in the evoked potential for the left arm). Nevertheless, activity in the right arm evoked potential is considerably greater in amplitude. Following the administration of a mild barbiturate (Kemithal) the left arm evoked potential now showed a large amplitude. Unfortunately, it is not noted in the article whether the evoked potential was from the parietal, vertex or both electrode sites. In view of the finding reviewed above concerning the difference between vertex and occipital leads it would have been good to know from which electrodes the findings were reported. If the potentials were recorded at the parietal electrodes (paralleling the occipital electrodes for visual stimuli) then it would mean that the inhibition was at an earlier point in the afferent pathway.

If the inhibition were at the vertex it would mean that the inhibition occurred between the sensory receiving areas and other cortical areas. Further it might clarify with what aspect of the evoked potential consciousness itself is associated. Shevrin, for example, found that a subliminal stimulus in normal subjects with mild repressive tendencies elicited a r e d u c t i o n in amplitude of a later secondary component. The electrode display was bipolar — occipital to frontal —and thus makes it difficult to separate out contributions from the different cortical areas. All that can be said is that in both studies a r e d u c t i o n in evoked potential activity was found in the presence of repressive characteristics.

Of special importance is a question concerning the subject's awareness of the stimulus when the mild barbiturate lifted the e l e c t r i c a l inhibition. The answer to this question is of some importance because of Libet's findings that a primary amplitude is associated with an a b s e n c e of awareness for a somatosensory stimulus, leading Libet to hypothesize that a secondary component may be associated with awareness; on the other hand, Shevrin found that a s e c o n d a r y amplitude was present in the a b s e n c e of awareness for a visual stimulus. Further, a number of investigations (Johnston and Chesney, 1974; Begleiter et al., 1973; Begleiter and Porjesz, 1975; Weinberg et al., 1970; Brown et al., 1973) indicate that a late secondary component in the anterior of the brain is associated both with meaning a n d awareness. If Hernandez-Peon's hysterical subject was u n a w a r e of the pin prick in a mildly sedated state while her evoked potential showed a clear secondary wave this would then be comparable to the Shevrin finding that a secondary component can be present in the a b s e n c e of awareness. Note should also be taken of the fact that in the Shevrin repression studies for repressive subjects the secondary component did not disappear but was d i m i n i s h e d relative to less repressive subjects. We may be dealing with a threshold factor: a secondary amplitude below a certain strength would not elicit consciousness, or the secondary component must last for some critical t i m e d u r a t i o n. This latter alternative would fit well with the Libet findings (to be discussed below) on the existence of a cortical factor in consciousness that is a function of stimulus d u r a t i o n. The tentative hypothesis would be that the presence of a secondary component in and of itself may not coincide with consciousness, but that its persistence needs to be of a certain critical duration. In the studies on EP correlates of meaning the stimuli were all supraliminal and thus the time duration of the secondary amplitude would be beyond the critical time postulated.

In a second study Potts and Nagaya (1969) investigated the visual evoked potential in three cases of hysterical amblyopia. They found that the visual evoked potential to a red stimulus subtending a visual angle of 0.6 degrees elicited a normal evoked potential in both the normal and the hysterically affected eye. From the context it would appear that the visual evoked potentials for the hysterical subjects came from the occipital to parietal electrodes although this is not clearly indicated either in the accompanying

figure or in the text. Here again it would have been interesting to have a reported data from the F_z and C_z electrodes which were also employed in this study. In the actual amblyopic patients their frontal leads showed less difference between the normal and amblyopic eye than at the more posterior leads, suggesting that what little sensory input was received at the occiput was nevertheless relayed forward to the frontal regions and underwent some further processing there. Would the hysterical patients have shown little such frontal activity for the pseudo-amblyopic eye?

This review will conclude with a consideration of Libet's intriguing findings concerning the adequate cortical stimulus for a conscious experience. Libet (1973) has been able to demonstrate that in order for a subject to experience a somatosensory stimulus a critical stimulus p u l s e d u r a t i o n is necessary. For most subjects it is in the 0.5 to 0.6 second range although the pulse duration may be as little as 0.4 seconds and as long as 1.0 seconds. Further, the pulse duration value is relatively constant for a given subject. Since Libet had already demonstrated that a somatosensory evoked potential can be detected at the cortex with single pulses well below the threshold of conscious experience, it would appear reasonable to suppose that a peak duration is necessary for consciousness itself to appear. The interesting paradox emerges that a single pulse lasting 0.1 second delivered to the skin can evoke a conscious experience while it takes a pulse lasting at least 0.4 seconds to elicit a conscious experience at the same sensory site with direct cortical stimulation. Is it possible that a natural stimulus has a different requirement for consciousness as compared to the artificial stimulus delivered directly to the brain? Libet has demonstrated that this is not the case. First, he cited the well-known fact that even though the peripheral stimulus may be brief its central effects may be measured in hundreds of milliseconds. Secondly, he employed a novel application of the masking technique to show that indeed the later activity evoked by the peripheral stimulus is necessary for conscious experience to occur. The masking procedure is based on a well-known phenomenon that when a second stronger stimulus follows a previous weaker stimulus within a certain critical time interval the first stimulus will not be perceived although it is above threshold strength for conscious experience when presented alone. Libet used as his first stimulus a single pulse delivered to the skin which was at threshold strength for conscious experience. A second or masking stimulus was delivered directly to the somatosensory cortex in the region including the area stimulated peripherally. The direct cortical stimulus has the advantage of not confounding peripheral and central factors as is often the case in the usual masking experiment where both stimuli are delivered peripherally. The direct cortical stimulus consisted of a brief train lasting about 0.5 seconds of pulses presented at 60 pulses per second. The peak current was 1-1.5 times the strength needed to elicit a conscious experience. Libet found that for most subjects if the interstimulus interval was between 125-200 ms., and for one subject up to 500 ms., consciousness of the first stimulus was absent. The subject was only aware of the second stimulus.

Further, the cortical stimulus had to last a certain minimum duration; single cortical pulse did not work. Libet concluded:

> Retroactive masking of the peripheral (S_1) sensation by a later stimulus (S_2) directly to somatosensory cortex, with S_1—S_2 intervals of up to 200 ms. or more, could only be due to interference with some late components of the brain responses to S_1 that are necessary for the mediation of a conscious sensory response.... the extent of retroactive masking that could be demonstrated provides powerful support for the hypothesis that a relatively long period of suitable cerebral activations is a necessary feature of the experiences (1973, p. 775).

If we combine Libet's two findings, the first showing that a cortical primary response is present for a subliminal stimulus and the second that a cortical pulse train is necessary for conscious experience, we can conclude that somatosensory stimuli can register cortically without consciousness and that conscious experience itself is a function of some additional system having its own properties. Of critical importance for consciousness is the train duration. As suggested above, this train duration may be more critical for consciousness than the presence of a secondary amplitude which persists for less than the critical time.

Summary and Conclusions

Although the studies reviewed are few and replication is largely absent, the evidence is generally favorable for the psychoanalytic concept of the unconscious and, in particular, supports, the following propositions:

1) As predicted by psychoanalytic theory, cognitive activity can go on without benefit of consciousness. Between conscious experience and neurophysiological processes there is no leap as assumed by James, for there are u n c o n s c i o u s cognitive processes that can be detected by a neurophysiological indicator, the evoked potential. The assumption of unconscious thought processes helps us to explain phenomena presented to the psychoanalyst from the early observations of Breuer and Freud in the S t u d i e s o n H y s t e r i a to the modern application of the free association method in psychoanalytic treatment.

2) Unconscious cognitive activity can be divided into two classes: cognitive activity that is no different in organization from conscious cognitive activity, referred to in psychoanalysis as the preconscious; and cognitive activity that is characterized by a different organization from conscious cognitive activity, referred to in psychoanalysis as the dynamic unconscious. There is some evoked potential evidence to support this proposition; namely, the work of Shevrin and his colleagues on the differences between conceptual and clang associations which apear to be related to quite different parameters of the VEP.

3) The dynamic unconscious implies the existence of defenses that actively inhibit the appearance in consciousness of certain contents. Here too there is support from evoked potential studies. Shevrin and his colleagues have shown that repressive subjects had a smaller VEP to subliminal stimuli and

associated fewer stimulus related words. Hernandez-Peon et al., were able to demonstrate a comparable reduction in the somatosensory evoked potential in the left arm of an hysterically anesthetized girl. Potts and Nagaya have demonstrated that in hysterical amblyopia the occipital evoked potentials were indistinguishable for the affected and non-affected eyes, strongly suggesting that the inhibition occurred anteriorly, very likely in frontal areas.

4) Finally, the psychoanalytic view leads to the conception of consciousness as a separate system having its own conditions of activation. The full range of cognitive activity can go on without benefit of consciousness. Consciousness itself is activated under certain special conditions. Libet's work speaks directly to this point. Only when a stimulus can activate a central cortical process lasting a certain minimal time will consciousness occur. Further, that the presence of a later secondary component need not be accompanied by consciousness unless it lasts a certain critical time. It need only be added that a variety of factors may keep this activation from taking place: a) a second stronger stimulus interfering with the later activity of a previous stimulus, very likely a common and normal occurrence, b) a subliminal stimulus too weak to elicit the necessary central activity but capable of activating the full scale of cognitive activity, c) some centrally controlled inhibition likely based on motivation as in hysterical repression. Investigations of the latter condition should make it possible to discover the nature of such defensive mechanisms as repression.

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The Psychological Unconscious

A Necessary Assumption for All Psychological Theory?

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ABSTRACT: *The notion of complex psychological processes operating outside of awareness has traditionally been associated with the concept of the unconscious used by psychodynamically oriented clinicians; it has never found an equivalent place in the mainstream of American experimental psychology. However, mounting evidence from several rather diverse fields of empirical research (e.g., selective attention, cortical evoked potentials, subliminal perception) provides support for such a concept, and, in fact, explanatory constructs of a similar nature have been embodied in several current models of perceptual processing. While there clearly remains an enormous gap between the clinically based conception and the experimentally based conception of the nature of these unconscious processes, they nevertheless seem to provide an interface between two seemingly disparate approaches to the understanding of personality.*

In a section entitled "Can States of Mind Be Unconscious?" William James (1890), in his classic *Principles of Psychology*, presented 10 arguments in favor of unconscious processes and 10 refutations of these arguments. The arguments in favor of unconscious states of mind ranged from unconscious inference, as in perceptual constancy, to unconscious motivation, which has since become so closely identified with psychoanalysis and Freud. To most of the arguments in favor of unconscious processes, James replied that a more parsimonious approach could be based on the assumption of neurophysiological processes unassociated with any psychological counterparts (e.g., "activated brain-tracts") or on the assumption that a psychological state could be briefly conscious and quickly forgotten, a fate suffered by many dreams. He also advanced the argument of a "split-off" cortical consciousness, as in multiple personalities, which sounds very much like a position recently taken by Hilgard (1977). James (1890) warned that "the unconscious is the sovereign means for believing whatever one likes in psychology and of turning what might become a science into a tumbling ground for whimsies" (p. 163).

Historically, American psychology since James has taken extreme positions on the issue of unconscious mental processes. Behaviorism, reacting against the methodological deficiencies of introspection, not only rejected the unconscious but also rid itself of consciousness, a direction hardly agreeable to James, for whom consciousness was the very subject matter of psychology. Psychoanalysis, as reflected in much clinical practice, has continued to base itself on unconscious mental processes, no matter what its particular school—classical Freudian, neo-Freudian, Jungian, Sullivanian, and so forth. Recent popular variants, such as transactional analysis, primal-scream therapy, and gestalt therapy, also share the assumption of unconscious mental processes. In more recent years, the "black box," into which no Skinnerian would peer, has tempted the voyeuristic impulses of not a few behaviorists. A growing number of behaviorists have begun thinking about thinking, finding it necessary to hypothesize about cognitive factors mediating between stimulus and response. Shallice (1972) has argued against the behaviorists' rejection of consciousness as a pseudoconcept, contending that "concepts such as strategy and rehearsal are . . . used as explanatory concepts. Such concepts depend on the theorist reflecting on conscious experience" (p. 383). Others, such as London (1972), Bandura (1974), and Lazarus (1977), have described their own evolution from radical behaviorism, in which cognitive mediating factors play no role, to a view of psychology in which subjective and conscious events are important. As cognition and consciousness have returned to psy-

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chology, the concept of unconscious mental processes has received increasing attention (Erdelyi, 1974; Neisser, 1976; Nisbett & Wilson, 1977; Posner, 1973).

It is the purpose of this article to show that in a number of different research areas, investigators have developed explanations that incorporate concepts akin to psychological unconscious processes. In fact, the variety and extent of such explanations, touching on several significant areas of investigation, suggest strongly to us the likelihood that no psychological theory can do without the assumption of a psychological unconscious.

Before presenting the models referred to, it will be necessary to offer a definition of unconscious psychological processes.

The Psychological Unconscious: Description and Definition

The clinical phenomena that led to the assumption of unconscious processes often take the form of a patient describing a bothersome condition that the patient can neither account for nor control (e.g., a phobia, a self-destructive pattern of behavior, a depressive mood) (Rapaport, 1944/1967; Sherwood, 1969). The patient's report in effect conveys a discontinuity in his or her ability to make sense out of some important aspect of experience.[1] Thus, a discontinuity is inferred when the apparent (i.e., consciously accessible) causal factors for a particular thought, feeling, or act are not, in and of themselves, sufficient to explain its occurrence. The psychodynamically oriented clinician then assumes that the disturbance can be accounted for by the existence of certain psychological processes unknown and unavailable to the patient. Underlying the concept of a psychological unconscious is the axiomatic belief that psychological factors are not epiphenomenal but can be causative agents. The psychological unconscious is simply that class of psychological events that are at the time unknown to the patient but that actively affect the patient's behavior. Furthermore, this impact on behavior reveals itself as a discontinuity, in which illogical or irrational relationships are often involved. Thus, the psychodynamic concept of the unconscious can be defined in terms of three characteristics: It is *psychological*, it is *active*, and it can be *different* in character from conscious psychological processes.

By *psychological* we mean simply that all categories of descriptive terminology applicable to conscious experience can also be applied to unconscious processes: perception, judgment, thought, affect, motivation, and so forth.[2] Thus, personally significant, cognitively abstract, and highly idiosyncratic experiences can be unconscious. Moreover, inasmuch as conscious processes are correlated with brain events, the same may be assumed for unconscious processes.

By *active* we mean that unconscious processes affect ongoing behavior and experience, even though the experiencer may be unaware of this influence. From this point of view, a memory trace, indicating some structural modification of the nervous system, would not be considered to belong to the psychological unconscious until such time as it actively influenced psychological events.

By *different* we mean that unconscious processes may follow different principles of organization than those that characterize psychological processes occurring during the normal, waking state of consciousness.

On the basis of this definition, we arrive at two postulates—a weak form and a strong form—for which we shall venture to adduce a range of relevant theory in psychology at large. In the *weak* form of this postulate, we shall assume that psychological unconscious processes exist and actively affect conscious psychological processes. In the *strong* form of the postulate, we shall add only that these psychological unconscious processes follow different laws of organization. It is worth noting that the view of unconscious processes held by psychodynamically oriented clinicians includes an important feature that we have not incorporated into either of the above postulates: We make no reference at this point to the special role of mo-

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[1] The reader is referred to Rapaport (1944/1967) for an extended discussion of the concept of discontinuity and its relationship to psychodynamic concepts.

[2] We are defining the term *psychological* on the basis of an ostensive definition, comparable to defining the color red by pointing to a series of red objects. In this way we are essentially using a common sense approach, drawing on readily available experience shared by most people. We chose this type of definition rather than an analytic type (e.g., red is defined as that color experience associated with a physical stimulus having the property of so many angstrom units) to avoid getting into a "mind–body" quagmire. For our present purposes, we propose to have open the question whether by such terms as judgment, thought, affect, and the like we are talking about "mind" or "body." We are simply talking about identifiable and reportable phenomena.

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tivational factors (e.g., drives, impulses), which are so important to the psychodynamically oriented clinician. However, in the course of our discussion, we shall attempt to point out the ways in which motivational factors fit within our conceptual framework.

Evidence and Theory in Support of the Psychological Unconscious

We shall now consider a number of different sources of evidence and a variety of theories, all of which appear to involve an implicit assumption of psychological unconscious processes. These areas of research and theory are (a) selective attention, (b) subliminal perception, and (c) certain visual phenomena involving perceptual processing, namely, retinal image stabilization, binocular rivalry, and backward masking. We do not consider these areas to be exhaustive of the areas in psychology that would provide support for our thesis; rather, we consider these particular areas to be of special importance because of the diversity of the methods on which they are based and because of their theoretical significance.

SELECTIVE ATTENTION

An individual, at any given time, is confronted with more stimulation from within and from without than can be managed adaptively. Some degree and kind of selection must occur. What is the nature of this selection process? In recent years some interesting answers have emerged, based on a body of highly ingenious experimentation. We shall focus on the general theories that have been advanced to account for the findings emerging from this area of research, rather than reviewing the specific studies themselves. For detailed reviews of selective-attention research, see Moray (1969) and Kahneman (1973).

Inherent in all the major models of attention is the assumption that at least part of the cognition related to attention takes place outside of awareness. Six such models will be described briefly. These models are based on extensive experimental research that has given rise to a literature marked by sharp controversy. For our purposes, however, we need rely only on the noncontroversial and broadly accepted findings, while identifying the controversial issues wherever they are relevant.

The earliest of these models was proposed by Broadbent (1958). In Broadbent's original "filter theory" of attention, signals enter the perceptual system through a number of parallel sensory channels. These parallel sensory inputs feed into a memory store, where they are retained for a few seconds. Beyond this memory store is a single channel that has a much smaller capacity than the combined capacity of all the input channels. A filter, lying between the memory store and the limited-capacity channel, selects one of the input lines and allows the signals that enter through it to gain access to the limited-capacity channel. Signals feeding in from the other channels are held briefly in memory and then lost. Thus, an initial sensory analysis of the stimulus input does occur prior to awareness of the nature of that input. Broadbent indicates that the determination of which signals are allowed access to the limited-capacity channel is based not only on the properties of the stimuli but also on the state of the organism (e.g., its drive state).

While a filtering mechanism of the sort described does involve perceptual processing outside of awareness, it should be noted that the analysis that occurs prior to awareness is a very rudimentary one inasmuch as only sensory information is involved—*meaning* is not a factor. Moreover, there is no provision for those stimuli that do not achieve awareness to be stored in any form. However, because Broadbent uses terms like *memory* to describe processes occurring prior to awareness, it appears that he considers them to be psychological; because they precede awareness, they are unconscious; lastly, because the filtering that occurs outside of awareness affects what will become conscious and because it interacts with the state of the organism at the time, these unconscious psychological processes are not simply latent but are active in our sense. There is also a hint that these unconscious processes work on a different principle from that of conscious processes—input is organized along multiple channels, as contrasted with the single channel for conscious processes. On the whole, however, Broadbent's (1958) model is more consistent with the weak postulate for unconscious processes than with the strong postulate.

Treisman's (1964) theory of perception is similar to Broadbent's in that information enters the system through multiple parallel channels. Treisman's model incorporates two stages of perceptual processing. The initial filter analyzes the incoming signals only on the basis of simple physical

properties, such as intensity or frequency. All signals pass through this filter and are processed further; however, this first filter attenuates the signal strength of the nonattended channels to a level below that of the attended channel. The signals then proceed through a second screening process based on more complex characteristics. In this higher order screening process, thresholds differ for different types of signals, so that even though a signal may have been attenuated by the earlier filter, it can still pass through this later screening process if it is of a type for which the threshold is low. In this second-level screening, the mechanisms that respond to biologically (or emotionally) important signals have permanently lowered thresholds; the thresholds for other types of signals may vary, depending on circumstances. In this model, the full import of a signal reaches awareness only after it has passed through the higher order second-stage screening process.

For Treisman, the processing that occurs prior to awareness involves far more complex attributes of the stimulus than is the case in Broadbent's (1958) model. Furthermore, these complex unconscious processes are concurrent (going on in parallel channels), whereas conscious processes are serial (single-channel in nature). Thus, Treisman's (1964) model is strongly consistent with the weak postulate and moderately consistent with the strong postulate.

Deutsch and Deutsch (1963) have propounded a theory of attention similar to Treisman's except that it does not posit an initial analysis on the basis of simple physical characteristics. Instead, all signals reach the higher order analyzers and then undergo complex perceptual analysis. Each signal increases the output of some mechanism for perceptual discrimination to a certain level; only the highest level output enters awareness. Conscious perception, in this scheme, is a response to the output of the higher order analyzing mechanisms; thus complex processing must occur outside of awareness. This model is, for our purposes, essentially similar to the Treisman (1964) model, and the same considerations apply to it as to the latter model.

The fourth model of attention to be discussed is that of Neisser (1967). Neisser's model is similar to the others described in that it posits parallel input processes that feed into a single mechanism of awareness. Neisser differs from the other theorists, however, in his conception of the nature of the processing that occurs without awareness and also in the degree to which he concerns himself with the explication of these perceptual processes in cognitive terms.

According to Neisser (1967), attentive mechanisms come into play only after preliminary processes have already ordered the stimulus field into coherent figural units, because these attentive mechanisms cannot operate on the whole field simultaneously. The preliminary, or preattentive, processes must of necessity be global and holistic in nature, since their function is to separate each figure or object as a whole from the rest of the stimulus field. Attentive processes, in contrast to the preattentive ones just described, are sequential, proceeding in a logical fashion on the basis of what is appropriate in terms of past experience.

Neisser's model allows for the possibility that a crude percept resulting from the preattentive processing may receive no further elaboration within consciousness. He raises the possibility that such elaboration may be deliberately avoided in certain areas and suggests a similarity between this notion and the clinician's concept of repression.

Neisser's (1967) model is clearly consistent with the weak postulate of a psychological unconscious: Complex psychological processes are carried on unconsciously, and there is an active commerce between these unconscious processes and conscious ones. But unconscious psychological processes are also qualitatively different from conscious ones in this scheme. Neisser's model is thus consistent with the strong postulate for unconscious processes as well.

In the fifth model to be described, offered by Posner (1973), a single-channel central-processing capacity is the aspect of attention most closely associated with consciousness. Consciousness, in this view, involves such mental operations as rehearsal and choosing a response. At least two stages of perceptual processing, encoding and comparison with long-term memory, occur outside of consciousness; that is, they occur before the subject becomes aware of the stimulus.

It would appear that the first stage of processing in Posner's scheme consists in the encoding of the stimulus. There is, in Posner's (1973) view, "simultaneous registration and retention of multiple codes of the same event" (p. 41). The different ways in which a given stimulus can be encoded (e.g., visually, symbolically) represent "isolable subsystems," which develop independently of each

other. The later, rehearsal phase (associated with consciousness) is code specific and tends to select one of the codes for dominance. However, even when attention is directed (because of the nature of the task) to only one of the ways in which a stimulus can be coded, the stimulus may nonetheless be coded other ways as well. Posner (1973) gives an example of this phenomenon, drawn from the visual-search literature:

> When the subject is presented visually with a list of letters, the names are also activated although they may not be conscious. Similarly, when the subject hears a list of letter names, the visual code is increased in availability. (p. 59)

The next stage of analysis after encoding involves comparison of the stimulus with the contents of long-term memory. According to Posner, the processes involved here also take place outside of awareness. In the studies Posner draws on most, the subject is first presented with a "target" stimulus (e.g., a digit) and is then told to search through a stimulus array to locate that particular stimulus. This stage of processing, in Posner's view, involves a comparison of each stimulus in the array through which the subject is searching with the previously presented stimulus (now stored in long-term memory). This comparison takes place outside of awareness. Posner (1973), reviewing research bearing on this point, concludes,

> The data suggest that both the target and non-target items are subject to a memory search process but only the target item gives rise to the phenomenological experience of jumping out at the subject. Thus, the phenomenal experience occurs rather late in the sequence of processing. (p. 41)

Posner believes that in the course of perceptual processing the stimulus makes contact with long-term memory prior to the point at which awareness occurs. He also argues that the fact that a limited-capacity channel exists in the sequence of perceptual processing does not restrict the range of associations that can be activated by a given stimulus outside of awareness. "Indeed," suggests Posner (1973), "it might require more effort to inhibit such associations than to produce them" (p. 41). This notion fits in well with the strong postulate because it suggests that processing outside of awareness is qualitatively different from processing within awareness.

For Posner and his colleagues, then, consciousness is bound up with those processes that involve the limited-capacity system. "This mechanism," they state, "serves to impose a serial order upon what are essentially widespread parallel processes initiated by a stimulus" (Posner, Klein, Summers, & Buggie, 1973, p. 11). They even go so far as to suggest a physiological correlate (an event-related brain potential) for this central processing mechanism: "The mechanism whose activity we have been detecting by interference [i.e., the mechanism of consciousness] is also the one which releases the late positive wave (P_{300})" (Posner et al., 1973, p. 11). Posner's model is consistent with the strong postulate for unconscious psychological processes.

Although not primarily dealing with attention, Sternberg's (1975) research on memory in visual processing is of some relevance. The basic paradigm in Sternberg's studies involves two steps. First, the subject commits to memory a set of stimuli (e.g., letters, digits, figures), which are called the *positive set*. He is then presented with a single test stimulus and must indicate by pressing one of two switches whether or not the test stimulus is a member of the positive set.

The results of Sternberg's reaction-time studies led him to hypothesize that the subject goes through the positive set, comparing each member with the test stimulus, at a rate of about 30 comparisons per second. Sternberg (1975) states specifically that "judging from what subjects report, the search is not accessible to introspection" (p. 5). Furthermore, Sternberg cites evidence that this rate is substantially faster than the rate of covert speech (which might be taken as one index of the rate of conscious processing). And he also states that "even when introspections include a search, it is reported to be slow and self-terminating" (p. 10), by which Sternberg means that the subject stops the search as soon as he or she finds the counterpart of the test stimulus among the comparison stimuli. In other words, there is a qualitative difference between conscious and unconscious processing. Sternberg's model is consistent with the assumption that unconscious psychological processes exist and do, in fact, obey different laws from those governing conscious processes, and thus his model is consistent with the strong postulate.

Summary. All six theorists assume that an initial phase of cognitive activity occurs outside of awareness, and each uses psychological terms to describe the processes involved. Second, these processes outside of awareness interact with and influ-

ence ongoing and subsequent conscious psychological processes, at the very least insofar as they determine what enters consciousness. For these reasons, these models are consistent with the weak postulate for unconscious psychological processes. But there is more. All six models posit that cognitive processes outside of awareness are based on a different mode of cognition from that of conscious processes. For five of these models, unconscious processes are multichanneled, whereas conscious processes are single channeled. In the sixth model (Sternberg, 1975), at least one kind of unconscious process is considered to be exhaustive in nature and much more rapid in execution, as compared with conscious processes. For some theoreticians there are even greater differences. For Neisser (1967), preattentive cognition is global and gestalt in character, though lacking in symbolic significance; for Posner (1973; Posner et al., 1973), multiple codes can be activated outside of awareness even though only a single code may enter consciousness. Posner raises the possibility of the inhibition of associations existing prior to consciousness as well as of a physiological index for consciousness itself. All of these models are based, not on clinical data, but largely on experimental investigations. There is still a considerable gap between the conception of unconscious psychological processes offered by these theorists and the view of the same processes held by psychodynamically oriented clinicians. For instance, none of these theoreticians discusses the possibility that percepts can be stored in long-term memory and can exert an active influence on simultaneous conscious processes, even though they may never enter into awareness or may not do so until long after they were originally perceived. The conception of unconscious motivation and memory held by most psychodynamic theorists, however, does in fact encompass such a possibility.

We shall now turn our attention to the literature on subliminal perception, in which some of these possibilities are considered.

SUBLIMINAL PERCEPTION

In selective-attention research, the stimuli are either fully conscious or can become conscious once attention is directed to them. In dichotic-listening experiments, for example, on which a considerable amount of attention research is based, stimuli are usually presented separately to each ear. Subjects are instructed to attend to the stimuli in one ear and to repeat them out loud to insure continued attention. Of interest is the finding that, generally, subjects are unaware of the stimuli in the unattended ear, although these stimuli exercise an influence on various response parameters of the attended stimuli. The unattended stimuli remain outside awareness only as long as a subject is attending to the other ear.

There is also an extensive literature on the investigation of stimuli that cannot be consciously perceived, even when attention is directed to them. These are stimuli that are presented so quickly that no matter how alert and focused a subject's attention, the stimuli remain unreportable. Nevertheless, effects of the subliminal stimuli are detectable. Dixon (1971), who has written an extensive evaluation of the subliminal-perception literature and has offered an interesting neurophysiological model, has suggested that selective attention and subliminal perception represent "end points on a single continuum of information processing" (p. 306). At any given time, an individual is presented with a broad array of stimuli of varying intensities and of varying relevance to adaptive tasks. Selection on some basis must occur. Subliminal stimuli are those stimuli that do not become conscious simply because they are too weak in intensity, even though they may be highly relevant.

Subliminal-perception research is relevant to our thesis because this research suggests that complex effects of stimuli that do not enter awareness can persist well beyond a few seconds or minutes, which is the span that the effects of stimuli in selective-attention experiments have thus far been determined to persist. At the same time, subliminal-perception research has been a source of controversy in psychology. In fact, Dixon's (1971) book is subtitled *The Nature of a Controversy*. The same book presents a strong case in favor of subliminal perception as a valid phenomenon, based on converging evidence from eight bodies of supporting research. More recently, Nisbett and Wilson (1977) have argued,

> The basic question of whether people can respond to a stimulus in the absence of the ability to report verbally on its existence would today be answered in the affirmative by many more investigators than would have been the case a decade ago . . . largely because of better experimental methods and the convincing theoretical argument that subliminal perception phenomena can be derived . . . from the notion of selective attention and filtering. (p. 239)

These comments are of special relevance because much of the controversy has centered on methodological difficulties.[1] Our emphasis in this article, however, is not primarily on the actual research investigations but on the explanations developed to account for a variety of findings. As with the selective-attention literature, controversies within the field may challenge one or another experimental hypothesis, but it can be shown that there is an underlying commonality in the explanations offered that does not depend on any one particular finding. Unlike selective-attention researchers, who did not set out to study unconscious psychological processes but were increasingly compelled to take such processes into account, researchers in the area of subliminal perception have often been interested in such processes from the start and have purposefully studied them experimentally.

Before briefly describing a number of models for explaining subliminal-perception findings, some of which parallel the models just presented for selective attention, we think it may be helpful to formulate what we consider to be the key issues bearing on our thesis for which subliminal-perception studies provide support:

1. Subliminal-perception research is concerned with stimuli too weak to become conscious immediately, no matter how much attention is directed to the stimulus field. No amount of shifting attention, as in dichotic-listening experiments, can bring the stimulus into consciousness.

2. Nevertheless, these stimuli have detectable effects on conscious processes, both immediately and, in some cases, after an interval of time.

3. These effects emerge in changed states of consciousness, as in dreams. By contrast, selective-attention research thus far has been concerned exclusively with one state of consciousness: the usual waking, alert state that most psychological subjects are paid to maintain.

4. Subliminal stimuli can be used to explore differences between unconscious and conscious processes.

The subliminal-perception literature provides an additional line of converging evidence for the necessity of assuming the existence of unconscious psychological processes.

We shall now describe five models developed to explain the various findings in the subliminal-perception literature.

Klein and Holt (1960) postulated that the effects of subliminal stimuli persist only briefly and have to be incorporated quickly into some ongoing cognitive activity or else they will disappear and leave no trace of their presence. They argued that inasmuch as the subliminal stimulus is never cognized as such but is only detected by its indirect effects on conscious processes, it will remain ineffective unless it can be assimilated into some ongoing cognitive activity. This model was based largely on an experimental paradigm in which subliminal stimuli were interspersed among conscious stimuli. The subliminal stimulus was either the word *angry* or the word *happy*, while the conscious stimulus was an ambiguous face that could be judged either way. The investigators determined that the face was seen as happy or angry depending on the particular subliminal word presented (Bach & Klein, 1957; Sackeim, Packer, & Gur, 1977; Smith, Spence, & Klein, 1959). Klein and Holt's model follows closely the findings derived from their particular method. Interestingly, this model is comparable to Broadbent's (1958) view: Stimuli enter a short-term memory system, and unless they become conscious immediately, they have no further effect. The main difference from Broadbent's model is the fact that this interaction between short-term memory and attention concerns subliminal stimuli exclusively. Klein and Holt's model is consistent with the weak postulate for unconscious psychological processes.

On the basis of an interesting series of experiments, Spence arrived at a model that is at variance with the model proposed by Klein and Holt: In his research Spence determined that a subliminally presented word can evoke a series of associations based on its meaning (Spence, 1961, 1966; Spence & Holland, 1962; Spence & Smith, 1977). He found that associations could be elicited at some point after the subliminal stimulus had been presented. On the basis of his findings, Spence posited what he called the "restricting effects of awareness." According to Spence, when a stimulus is presented subliminally, as compared to when it is presented supraliminally, a greater

[1] One important controversial issue has centered around the use of threshold measures in subliminal research, which, according to signal-detection theorists, confounds sensory sensitivity with response parameters. Dixon (1971) has taken up this issue, discussing the theoretical implications as well as citing subliminal-perception research based on signal-detection techniques that have yielded positive results. Nisbett and Wilson (1977) also discuss signal-detection theory and subliminal perception.

variety of associations are elicited. Awareness of the stimulus appears to limit or restrict the range of associations elicited by the stimulus word. This concept appears to be quite similar to the one offered by Posner (1973) when he proposed that stimuli are multicoded (i.e., elicit multiple associations) even though we may be consciously aware of only one of these codes or associations. Again, the significant difference is that Spence is concerned solely with subliminal stimuli, which in themselves never become conscious. Spence's model is consistent with the strong postulate for unconscious psychological processes.

Perhaps the most comprehensive model for subliminal perception has been offered by Fisher (1956). A pioneer in subliminal-perception research, he suggested that it would be useful to assume that all cognitive processes of whatever kind have to start in an unconscious phase; some become conscious almost immediately, while others remain unconscious for longer periods of time and may then appear in various altered states of consciousness such as dreams. Moreover, Fisher interpreted his findings to support the view that unconscious cognition is qualitatively different from conscious cognition. His model is consistent with the strong postulate for unconscious psychological processes.

Dixon (1971) proposed one of the first neurophysiological models attempting to account for subliminal perception. He argued that although certain instances of subliminal perception may involve temporal or spatial summation at the level of peripheral receptor neurons, for complex stimulus arrays the processes involved must lie at higher levels of the nervous system. As evidence for this hypothesis, Dixon cited a study done by Libet, Alberts, Wright, and Feinstein (1967) demonstrating that cortical responses can be evoked by stimuli below the awareness threshold. He also described an experiment by Shevrin and Rennick (1967) which indicated that subliminal stimuli influence both cortical evoked potentials and the subject's free associations. And he discussed a study by Begleiter, Gross, and Kissin (1969) which suggests that it may be the meaning rather than the structure of the subliminal stimulus that determines both the cortical response and subsequent behavior.

Dixon's (1971) proposed physiological model is consistent with these findings and also with results of studies of perceptual defense which suggest that the threshold (in terms of intensity) for emotionally significant stimuli, such as words or pictures, tends to be either higher or lower than the threshold for emotionally neutral stimuli. Dixon argued that the most important mechanism underlying these phenomena probably involves corticofugal influences on the reticular activating system. According to this view, the classical afferent fibers transmit the information that forms the specific content of consciousness, but these fibers do not per se mediate awareness. For awareness to occur, there must be not only sensory input through these afferent fibers but a simultaneous activation of the nonspecific reticular system.

In subliminal perception, then, the intensity of the stimulus is great enough to elicit activity in the sensory fibers but lacks sufficient energy to activate the nonspecific reticular system. Thus information reaches the cortex without awareness of the stimulus itself.

Subliminal perception, according to Dixon, is made possible by the fact that the primary, classical afferent lemniscal system (which conveys sensory information to the cortex) conducts faster than the secondary, nonspecific extralemniscal system (which is involved in reticular activation). As a consequence of this disparity in conduction speeds, it is possible for information to reach the cortex and for the cortex to exert inhibitory control over the reticular system prior to the arrival of the neural impulse that would normally have activated that system and thereby produced awareness of the stimulus.

Inasmuch as this suggests that the underlying neural processes are different for subliminal and supraliminal processes, Dixon's (1971) model is consistent with the strong postulate for unconscious psychological processes. And, whether this particular model is correct or not, the most important contribution Dixon has made with regard to the physiological basis of subliminal perception (as he himself has pointed out) is simply to demonstrate that such a phenomenon is plausible in terms of current neurophysiological knowledge. Such a demonstration, in turn, can serve as a spur to further investigation of the neurophysiological underpinnings of unconscious psychological processes. To the extent that such future research can firmly establish that such neurophysiological measures as cortical evoked potentials index unconscious psychological processes in the same way that evoked potentials have been shown to index conscious per-

ceptual processing, it will provide investigators with an additional tool with which to study these unconscious processes.

On the basis of findings from a series of evoked-potential studies employing a pair of visual stimuli presented sub- and supraliminally, Shevrin (1973) proposed that the evidence strongly suggests that (a) complex unconscious psychological processes have identifiable neurophysiological correlates, (b) these neurophysiological processes are associated with attention to the meaning of the stimulus, (c) different parameters of the evoked potential are associated with different thought processes related to the subliminal stimulus, and (d) subjects characterized as repressive, on the basis of psychological tests, show reduced evoked potentials to the subliminal stimuli but show augmented potentials to the same stimuli when they are supraliminal. Moreover, Shevrin (1978) has suggested that there may, in fact, exist an evoked-potential correlate of consciousness. This correlate may take the form of a critical duration of a late positive evoked-potential component occurring sometime between 150 and 250 msec poststimulus. This model is based in part on Libet's findings demonstrating that a certain critical duration of cortical excitation ($\frac{1}{2}$ sec in actual time) is necessary before consciousness of a stimulus is activated (Libet et al., 1967). Thus, the "weakness" in subliminal stimulation may not be the failure to activate the reticular activating system but may be a failure to activate it for a critical duration. Shevrin's explanation, in particular the point noted in (d) above, is consistent with the strong postulate for unconscious psychological processes.

In partial confirmation of Shevrin's work, Kostandov and Arzumanov (1977) have reported that the average evoked potential associated with emotionally significant verbal stimuli showed systematic changes in latency and amplitude as a function of consciousness.[4] When neutral and emotionally meaningful words were present in consciousness, a positive wave at 300 msec poststimulus (P_{300}) tended to be greater in amplitude for the emotional words at the occipital region and also shorter in latency; no differences were found at the vertex. When neutral and emotionally meaningful words remained unrecognized, latency differences disappeared, but significant amplitude differences were present in favor of the emotional words at both the occipital site and the vertex site for P_{300}. Kostandov and Arzumanov (1977) concluded that "the difference in the amplitude of the evoked potential for neutral and emotional words suggests . . . that even if the verbal stimulus is not recognized, the analysis of its semantic content occurs at the cerebral cortex" (p. 321). They have hypothesized that "unspecific impulses" from the limbic system must undergo a different fate depending on whether the emotional stimulus is conscious or not. When it is conscious, the effect of these impulses is restricted to the occipital region; when the stimulus is unconscious, their effect appears to spread to the vertex as well. The possible psychological effects of this spread are not specified, although one can speculate that they may be related to Spence's "restricting effects of awareness" and the "single-channel" conception of consciousness embodied in a number of cognitive models of selective attention. It is also important to note that, as in previous perceptual-defense studies, the recognition threshold for the emotionally meaningful words is higher than the threshold for the neutral words for most subjects but lower for some subjects. Nevertheless, the evoked-potential difference is found regardless of threshold. Thus we can see that there is indeed a prior cognition of semantic properties, as evidenced by the evoked potential, to which the individual responds with either a raising or a lowering of recognition thresholds. The defense or vigilance is subsequent to actual cognition. Insofar as there are differences for unconscious stimuli, we can consider this study to support the strong postulate for unconscious processes. It is also of interest, in view of Posner's (1973) hypothesis concerning the P_{300} amplitude as a possible correlate of consciousness, that the Russian investigators found that the P_{300} amplitude was the critical correlate. For the Russian investigators, however, P_{300} appears to be associated with unconscious processes, whereas Posner has hypothesized that P_{300} might be a correlate of consciousness. Further research will be needed to reconcile this difference.

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[4] It is of considerable interest that a growing number of Russian investigators have been conducting investigations on subliminal and other unconscious processes. The Russians have sponsored an international conference on unconscious processes; three volumes of the proceedings of this conference have been published, containing articles by Russian, American, French, German, and other investigators (Prangishvili, Shevrin, & Bassin, 1978).

Summary. In general, the findings and models emerging from subliminal-perception research converge strikingly on the same conclusion that the findings and models emerging from attention research have reached: A great deal of complex cognitive activity can go on without benefit of consciousness. Moreover, this complex activity is characterized by different properties from those present in conscious cognitive activity. Thus, subliminal research supports both the weak and the strong postulates for unconscious psychological processes.

VISUAL PHENOMENA INVOLVING PERCEPTUAL PROCESSING

Subliminal-perception research generally deals with complex stimuli whose effects are studied over relatively long periods of time. We have cited experiments that show how cortical evoked potentials accompany subliminal cognition. In addition to these experiments, there is a growing body of research which has found that cortical evoked potentials are present when a stabilized retinal image disappears from consciousness, when an image is suppressed in one eye through binocular rivalry with the other, and when a stimulus is masked by a second, succeeding stimulus. For more extensive reviews of the research pertaining to the central mediations of these phenomena, see Turvey (1973), Coren and Porac (1974), and Walker (1978).

For our purposes, a major limitation of these studies lies in the fact that they make no attempt to document *any* contemporaneous effects on conscious cognition, leaving unanswered the question of whether the psychological processes indexed here can be said to be active (in the sense used in our definition of the weak postulate). Hence, these studies can only be considered to lend indirect support to the weak postulate; they are noted here largely because they represent, potentially at least, a converging line of evidence based on quite different methods from those described heretofore.

Retinal image stabilization. When an image is stabilized on the retina in such a way that as the eye moves, the stimulus continues to act on precisely the same area of the retina, the image disappears (although part or all of it may briefly reappear from time to time). Riggs and Whittle (1967) and Lehman, Beeler, and Fender (1967) have reported that there were no changes in the cortical evoked potential when their subjects stated that the image had faded from consciousness. At the same time, the retinal evoked potential indicated that retinal cells were firing, and so the visual stimulus was being propagated along the optic nerve. Riggs and Whittle used an occipital electrode, and Lehman et al. used an occipital–parietal display. In the latter study, the investigators also found that bursts of EEG alpha appeared to precede the reported fading of the image, strongly suggesting that a central "turn-off" of consciousness was at work. The authors of these two studies concluded that the loss of awareness was a cortical and not a peripheral phenomenon. Studies that have used other approaches than examination of cortical evoked potentials to investigate the effect of stabilization of the retinal image have also offered evidence that this phenomenon is central rather than peripheral in origin (e.g., Bennett-Clark & Evans, 1963; Blakemore, Muncey, & Ridley, 1971). In the one study with less striking results (Keesey, 1969), it was still found that an evoked potential was present for the faded image, but it was smaller in size than when associated with a conscious stimulus. Thus, retinal image stabilization seems to represent another experimental paradigm in which the evoked potential serves to index the existence of perceptual processing at a cortical level in the absence of subjective awareness of the stimulus.

Binocular rivalry. Binocular-rivalry studies offer still another experimental paradigm in which the presence of cortical evoked potentials may be detected in the absence of subjective perception of the eliciting stimulus. The general procedure in these studies is to present different images simultaneously to the two eyes, making certain that the visual fields of the eyes do not overlap. In such a situation, at different times one or the other eye will be dominant; that is, the subject will be aware of the image presented to the visual field of that eye while being unaware of the image presented to the visual field of the other (suppressed) eye. A visual evoked response (VER) will be found for the suppressed image even though this VER may be smaller than the VER associated with the image for the dominant eye (Cobb, Morton, & Ettlinger, 1967; Harter, Seiple, & Musso, 1974; Harter, Towle, & Musso, 1976; Lehman et al., 1967; Lehman & Fender, 1968; Riggs & Whittle, 1967; Spekreijse, Van Der Tweel, & Regan, 1972).

It might also be noted that a number of studies of binocular rivalry using other approaches than

evoked-potential recording have also found evidence to suggest that binocular suppression occurs at a central (i.e., cortical) rather than at a peripheral level (Walker, 1978). In one particularly interesting study, for instance, Walker (1975) found that a moving visual stimulus that was presented at a subliminal intensity to the suppressed eye (the subject reported no awareness of it whatsoever) reduced the proportion of time the other eye maintained its dominance. In his discussion of his results, Walker argued that this phenomenon can be accounted for only by assuming that information about the moving stimulus reaches the cortex even though it never enters awareness. It would appear, then, that binocular rivalry represents another condition under which perceptual information is processed at a cortical level despite the fact that it is not subjectively perceived.

Backward masking. Two basic types of backward masking have been demonstrated. In one type, a stimulus is presented, followed by a second stimulus of greater intensity. When the interstimulus interval is around 25 msec and the second stimulus is more intense than the first, the subject will perceive only the second stimulus. This phenomenon is sometimes called the *Crawford effect.* The other type of backward masking is termed *metacontrast.* Here, the stimuli used are generally shapes or patterns. They are presented one after the other at equal light intensities. The location of the two stimuli in the subject's visual field is such that if the two stimuli were presented simultaneously, their contours would be adjacent. In this situation, the presentation of the second stimulus "masks" the subject's perception of the first, so that he or she is not aware of it. The Crawford effect appears to be mediated peripherally and will not be pursued further (see Donchin & Lindsley, 1965; Donchin, Wicker, & Lindsley, 1963; Fehmi, Adkins, & Lindsley, 1969). However, there is reason to believe that in metacontrast the masked stimulus—although the subject is not aware of it—elicits a cortical evoked potential.

Andreassi and his co-workers have investigated this metacontrast phenomenon (Andreassi, DeSimone, & Mellers, 1976; Andreassi, Mayzner, Beyda, & Davidovics, 1971; Andreassi, Stern, & Okamura, 1974). The general procedure was to present five X's (or patterns) in a horizontal spatial array: XXXXX. The second and fourth figures were presented simultaneously, followed after a brief interval by the first, third, and fifth figures (presented at the same time). In this way, the first two figures presented were surrounded on either side by the second set of three figures, providing the basis for the metacontrast effect to occur. When the stimulus sets were presented with an interstimulus interval of 40 msec, the subjects perceived the second set of stimuli but not the first. When masking was thus obtained, the amplitude of the visual evoked potential to the first, or masked, stimulus decreased as the disparity in intensity between the two stimuli was increased; however, the evoked potential never entirely disappeared, even in the conditions in which stimulus intensities were most discrepant.

The presence of an evoked potential in the absence of any awareness of the masked stimulus provides another example of perceptual processing outside of awareness.

Discussion and Conclusions

The different avenues of research and theorizing reviewed in this article converge on three fundamental propositions, which can be stated as follows:

1. The initial cognitive stage for all stimuli occurs outside of consciousness.

2. This initial cognitive stage outside of consciousness is psychological in nature, is active in its effect on consciousness, and can be different from conscious cognition in its principles of operation.

3. Consciousness of a stimulus is a later and optional stage in cognition.

These three propositions bring us to an interesting further question: If the initial stage of cognition is unconscious, what factors determine the emergence into consciousness of a particular stimulus? We should like to suggest that there are at least three groups of factors that, working singly or together, determine this final step in cognition:

1. Stimulus factors (e.g., loudness, brightness, figural coherence, etc.);

2. State factors (e.g., level of arousal, sleep stage, fatigue, distractibility, etc.);

3. Motivational factors (e.g., avoidance of anxiety, guilt, conflict, etc.).

Some cognitive theorists, such as Neisser (1967, 1976), have made reference to all three factors. Broadbent's (1958) model allowed for the state

of the organism to affect the selection of stimuli that become conscious. Treisman (1964) posited built-in low thresholds for biologically and emotionally important stimuli, which would permit these stimuli to pass through higher filter systems into consciousness. Of special interest to the clinician is the last group of factors, consisting of motivational factors. Several experiments we have cited (Kostandov & Arzumanov, 1977; Shevrin, 1973) suggest that the specific emotional content of a stimulus may raise the threshold for the perception of that stimulus, with the clear implication that the stimulus is analyzed prior to the individual's awareness of it. As Posner (1973) noted in regard to his research on attentional processes, although an individual may be aware of the fact that a particular stimulus has "popped" into awareness, he may be quite unaware of the preceding complex selection process. Evidence of this kind provides the bridge to the psychoanalytic concept of repression. Repression may be conceptualized as a motivated inhibition of awareness of a particular stimulus. This motivated inhibition may work independently of stimulus strength and state of arousal. It is conceivable that at least some of the forces affecting the preattentive processes are motivational in nature.

In most cognitive research, and, in particular, in research on selective attention, generally only one state of consciousness is considered—the normal waking state. In fact, in many of these studies, consciousness is often tacitly equated with this particular state of normal waking consciousness. The single-channel cognition model of consciousness may be a special case limited to waking consciousness. Dream consciousness, states of intoxication, and psychotic states may not share this single-channel characteristic. These other states of consciousness remain an important area for experimental investigation because they might provide an additional bridge between laboratory research on cognitive processes and the consulting room.

Another important qualification to be borne in mind is that all the research cited in the present article is based on external stimuli. Much clinical thinking, on the other hand, is based on the fate of internal stimuli—for example, wishes and needs. While the evidence presented here does not demonstrate that the processing of internal stimuli is identical to the processing of external stimuli, it does suggest that these two processes are not necessarily dissimilar. Although Freud (1915/1958a) argued, and many clinicians have assumed, that the mechanisms used by the individual to fend off external stimuli differ from those used for internal stimuli (e.g., motor acts for external stimuli vs. repression for internal stimuli), the evidence presented in this article suggests that a much greater similarity exists between the two modes of processing than Freud supposed. In fact, elsewhere in his writings Freud described how attentional processes are involved in symptom formation (Breuer & Freud, 1893–95/1955) and in repression itself (Freud, 1915/1958b), thus providing a bridge, through the concept of attention, to the models proposed by attention theorists that we have described in this article.

If the thesis we have elaborated here is correct, then James (1890) was mistaken in his rejection of unconscious psychological processes. Rather than being the "sovereign means for believing what one likes in psychology," the assumption of unconscious psychological processes appears to be a conceptual necessity in a variety of models dealing with selective attention, subliminal perception, retinal image stabilization, binocular rivalry, and metacontrast. Ironically, these areas of investigation are entirely experimental, not clinical, in nature and are thus not as likely to be subject to James's concern that the notion of unconscious psychological processes would turn "what might become a science into a tumbling ground for whimsies." Behaviorism, for its part, must accommodate itself to accepting the importance of what goes on inside the "black box," especially since we now have methods for investigating its contents. The clear message from much recent thinking in psychology appears to be that behavior cannot be understood without taking conscious experience into account and that conscious experience cannot be fully understood without taking unconscious psychological processes into account. The laboratory and the consulting room do seem to be sharing at least a common wall, which may in fact turn out to have a door in it.

Finally, if the thesis elaborated in this article is correct, then no psychological model that seeks to explain how human beings know, learn, or behave can ignore the concept of unconscious psychological processes. Moreover, we dare to hope that the present article may provide a basis for a shared task and useful communication between clinician and experimenter.

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Mr. GLICKMAN. Our final witnesses today are two attorneys who have been involved in this issue, have written a rather comprehensive Law Review article, Olivia Goodkin and Maureen Phillips, both of Los Angeles.

Why don't, Ms. Phillips, you start.

STATEMENTS OF OLIVIA GOODKIN, RUTTER, EBBERT & O'SULLIVAN; AND MAUREEN ANN PHILLIPS, H.P.I. HEALTH CARE SERVICES, INC.

Ms. PHILLIPS. Yes, if that is OK. We have broken it up. I will start and we will go back to Olivia and I will conclude if that is OK.

We have discussed the effectiveness issue, we have discussed the uses of subliminal communication technology. This afternoon Olivia and I will address ourselves to the social and ethical issues involved, the legal remedies presently available to a plaintiff who is injured whose rights have been infringed upon as of this moment and then ultimately we would like to make a proposal as to what we think would be reasonable legislation.

As we are all aware, various criticisms and objections have been advanced against the use of subliminal communication devices in certain contexts. Indeed as these devices are put to use in more numerous markets, real concerns are generated that, at the very least, are worthy of some thought and consideration by our lawmakers. What underlies these concerns and what are the social values at stake with the advent of subliminal communication technology? Insofar as the devices involve a form of behavior control of which we may not always be aware, it is our position that individual autonomy and privacy rights are jeopardized.

Let me deal with the individual autonomy concept first and focus on what I mean when I refer to the concept of individual autonomy. Although the word autonomy defies any one definition, we know that it has something to do with the idea of being responsible for one's actions, choosing how one is going to act and controlling one's actions. In some sense, individual autonomy is threatened when subliminal communication is used without the knowledge of the individuals on whom it is used.

As Ms. Goodkin will discuss later, our legal system has historically given great protection to the individual autonomy of all people. Indeed, I would go so far as to say that it is one of the fundamental values underlying our system of Government. In addressing the legal ramifications of the use of various forms of behavior control technologies, a legal scholar by the name of Prof. Nathaniel Brandon encapsulated, in my view, the concerns that are at stake.

Professor Brandon stated that the democratic system itself is based on the notion that people are capable of governing themselves. This capability arises out of "our ability to be explicitly aware of our own mental activities, to question their validity, to judge them critically, and to alter or correct them. Man has the power to regulate the actions of his own consciousness."

When subliminal communication devices are introduced, an individual's behavior is influenced or manipulated without that indi-

vidual having the opportunity to immediately evaluate and think about the message that is input. Unlike other external influences of which we are consciously aware, a subliminal message arguably bypasses our sensory mechanisms and the mechanisms by which we typically evaluate, at some level, the external input of our environment.

The seriousness of this threat to individual autonomy values is, of course, measured by the level of effectiveness of subliminal communication devices. A very serious threat exists if such devices are capable of inducing a behavior that is totally contrary to one's normal predispositions. Consider, for example, a subliminal message that is capable of inducing a very health conscious individual to smoke cigarettes when he never before had such an inclination. In this extreme case, we are, in essense, a tool of the individual or entity who is programming the subliminal device.

The more realistic scenario is the case in which a subliminal message simply induces a person who is already predisposed towards a particular action to carry out that action. For example, a message may induce an individual who is hungry to overcome his self-control and eat some tempting food. Even in this case, the subliminal message has bypassed the normal sensory mechanisms. And, individual autonomy is still threatened insofar as this individual is not presented with the opportunity to question and evaluate the message that is being given to him.

To the extent that our thinking and judgment capacities are reduced, we must consider the possibility that political and psychological freedom is simultaneously being threatened.

A second set of social values that is jeopardized by the advent of subliminal communication technology revolves around the notion of individual privacy, and those aspects of privacy characterized as the "right of personhood." Great value, respect and protection has historically been accorded to human thoughts and mental processes regardless of how unhealthy or abnormal those processes may be. Subliminal communication technology allows one to enter an individual's mind and secretly manipulate its thought processes.

Legal scholar and professor Michael Shapiro studied various behavior control techniques that have been used on involuntarily incarcerated people, and reviewed various legal decisions restricting such uses. Distilled from these legal decisions, he postulates that the first amendment to our Constitution protects something that he calls the freedom of mentation or the right to be free from interference with our mental processes. Indeed, one could question the value of the enunciated freedoms of speech, association and religion without freedom of thought, the implicit underpinning of them all.

The same principles apply to an analysis of subliminal communication technology. The recipient of subliminal messages is in a highly vulnerable position and is very easily influenced and manipulated because he is not consciously aware that he is receiving the message. This is very different from the kind of impact that commercial advertisers may have through the use of billboards, radio and television. In the latter case, the recipient has the opportunity to consciously evaluate and consider the messages that bombard his senses and the crucial choice not to listen or watch at all is his.

The legal system has also historically protected the ideational content of each person's thoughts, regardless of whether or not such thoughts and ideas are morally reprehensible or potentially harmful. A classic example of such protection is reflected in a decision of the U.S. Supreme Court in *Stanley* v. *Georgia*, a 1969 case wherein the Court struck down a conviction for possession of obscene material. In its opinion the Court emphasized that private possession itself is not a crime and that any attempt to influence or control the moral content of a person's thoughts is ethically reprehensible and wholly inconsistent with the philosophy of the first amendment.

One eloquent description of the concerns at issue was provided by Mr. R. Schwitzgebel, in his article entitled "Psychotechnology-Electronic Control of Mind and Behavior". Mr. Schwitzgebel stated:

> Privacy is no more and certainly no less than the freedom of the individual to pick and choose for himself the time and circumstances under which, and most importantly, the extent to which, his attitudes, beliefs, behavior, and opinions are to be shared with or withheld from others.

The applicability of this reasoning to subliminal communication technology is clear: No individual or government should have the unrestricted right to influence human attitudes, beliefs or behavior in a manner that is by definition beyond our control and knowledge.

It could be argued that the social benefits that are gained from the use of subliminal communication technology outweigh the negative consequences that flow from any kind of infringement of individual autonomy and privacy rights that I have been talking. For example, one may argue that controlling shoplifting or discouraging people from smoking cigarettes, on balance, outweighs the injurious consequences of the infringement itself. Two responses can be made to that argument. First, social deviance and inappropriate behavior is, although arguably, a necessary side effect of a free society. The alternative, a society whose minds are controlled and whose psychological freedom is diminished, is by no means a preferable alternative.

Second, if we permit some socially beneficial uses of subliminal communication, we are then forced to empower some individual or agency with the task of determining what messages are good or bad types of behavior and what behavior is socially deviant or socially acceptable. Given the inherent difficulty of selectively regulating this technology's application, the implications of granting such wide-ranging powers to any group or agency, public or private, is rather sobering.

At this point, Ms. Goodkin will discuss various legal considerations associated with the use of subliminal communication technology.

Ms. GOODKIN. Good afternoon. I would like to address some of the legal options.

The first option which may not be obvious is to do nothing at all. This may be the best option based on what we do know about subliminal communication technology. If subliminal communication is not regulated, the individuals who feel they have somehow been harmed or offended by secret messages can resort to the judicial system by suing the transmitters of secret messages or by

suing the manufacturers of the devices. Apart from the first amendment rights that would be preserved by permitting use of subliminal technology, an argument in favor of private lawsuits is that the market will adjust in response to the lawsuits, as it does every other area of consumer safety and health.

For instance, if the lawsuits are burdensome enough for the manufacturers or the transmitters, they will either take their products off the market or issue warnings regarding the content and existence of the subliminal message.

There is precedent for personal injury lawsuits in general, where a person has been harmed by a defective or hazardous product. More specifically, there is precedent in the area of tort law for actions based on invasion of privacy. Primarily the privacy actions have dealt in the areas of bugging, harrassment from news reporters, and other more traditional intrusions.

A 1969 Federal case arising in the district in which we are now sitting. The name of the case is *Pearson* v. *Dodd*. Two of Senator Dodd's aides removed files from his office. The thieves replaced the files after copying pertinent information. The information reached a publisher who did indeed publish the stolen information. Senator Dodd unsuccessfully sued the publisher for intrusion of privacy. In support of its ruling, the court stated that the publisher had received third-party information so the tort of intrusion of privacy was not good as against the publisher. In other words, the publisher himself had not violated the Senator's personal sphere of privacy.

But the court then went on to state that Senator Dodd very possibly would have succeeded on his tort action if it had been brought instead against the thieves themselves, those who invaded the private sphere, his files. The court supported "the extension of the tort of invasion of privacy to instances of intrusion, whether by physical trespass or not, into spheres from which an ordinary man * * * could reasonably expect to be protected."

Mr. GLICKMAN. Could I ask you to hold for a moment, Ms. Goodkin? I have to make a phone call and there is no one else here to take the chair. I will be back in 4 or 5 minutes.

[Recess.]

Mr. GLICKMAN. OK, go ahead.

Ms. GOODKIN. I was discussing the precedent for an action based on invasion of privacy and at first glance it appears that the subliminal intrusion cases are similar to an intrusion based on subliminal communication. After all we are talking about invasion of a person's private sphere, their mind, their memory processes, their privacy and autonomy.

But there is a distinction of the traditional cases involving either observing what the victim has to say or gathering information from a person. I believe it strains the analogy to think of subliminal communication in the same light since subliminal communication involves sending messages to a person's mind, in fact perhaps manipulating or influencing a person.

There simply is no precedent for a case dealing with subliminal communication although there is much in the language in the typical intrusion case supporting this expansion. There is new informa-

tion in bugging cases dealing with new technology and the courts were willing to expand recovery into those areas.

In a 1958 case, *Roach* v. *Harper,* a landlord installed a bug in one of his tenant's apartments and the court permitted the tenant to recover monetary relief. The court said the "right to privacy is an individual right that should be held inviolate." To hold otherwise under modern means of communicative hearing devices, photography and other technological advancements, would effectively deny valuable rights and freedoms to the individual.

It is language such as that that makes me believe that perhaps in a few years somebody could succeed on an action based on subliminal intrusion. However, I believe that private actions are problematic.

First, they do not prevent the harm before it has occurred. Second, recovery always turns on proof, proof that the subliminal intrusion has occurred which may be difficult, and perhaps proof that it had somehow affected a person's behavior or thought processes.

I could see the subliminal intrusion trials involving a never ending parade of experts, doctors, and research scientists to explain the effect and harm if any of subliminal communication.

Moreover courts more readily award monetary relief for tangible injuries such as economic harms, not for injuries to things such as intangible concerns as privacy and autonomy.

Moreover, the cost of private lawsuits is prohibitive for most citizens and in most cities it takes 4 to 5 years before a lawsuit gets to trial which is long after the injury has occurred.

Because of all the problems associated with private actions it seems that some sort of regulation, if we are going to do anything, is the better course of action.

At this point I would like to summarize for you some of the past and current legislative efforts made in the area of regulating subliminal communication before we move to our final recommendations and the current feasibility of regulating subliminal communication.

As you may know the largest activity occurred in the late 1950's, when subliminal communication made its mass media debut in the motion picture theaters and so forth.

In 1958 New Jersey created the commission to study subliminal projection. That commission concluded that subliminal influences warranted legislative protection of the right of privacy even though at that time it was unclear whether or not subliminal communication was effective.

A statute requiring disclosure of the message was proposed but was not enacted. The states of New York and California also proposed laws, laws that would have banned subliminal use altogether but those proposals did not become law. In 1958 Members of Congress urged the FCC to investigate the possibility of control or prohibition of subliminal advertising and as Mr. Camp had discussed, various proposals were made in the 1950's.

One bill would have subjected subliminal users to a fine of $5,000 and/or 30 days in prison. Another bill would prohibit subliminal advertising altogether. None of these bills became law.

In California there is now a bill pending before the Senate judiciary committee. In fact there is a hearing on the bill tomorrow. In its present form the bill prohibits subliminal advertising or use in commercial settings without notification to the public of the existence and content of the message. Commercial settings are defined as sales meetings, boat shows, department stores and the like. The bill structures as a consumer protection act so that State and local agencies will be empowered to act on an individual's claim made under the law.

In its original form the California bill proposed a private cause of action for invasion of privacy based on subliminal intrusion. But the California Legislature rejected that bill in that form for many of the same reasons that I suggested private actions are problematic.

Turning to what kind of regulation if any that Congress would be interested in pursuing at this point, it is very important for us to consider any potential challenges to such regulation. It is most likely that any challenges to any such regulation would come in the area of first amendment law since we are seeking to regulate a form of speech.

Although the first amendment guarantees freedom of speech we all know that such freedom is not absolute. The Supreme Court has upheld various laws that regulate freedom of speech; however, I would like to focus on examples of laws most relevant to the issue before us. The cases more relevant are those called the captive audience.

To give you an example, in the case of *Lehman* v. *City of Shaker Heights,* the city of Shaker Heights had a policy of excluding political advertising from its city buses. The Supreme Court upheld the restrictive policy. Now, commercial advertisements were permitted, I should note. Of interest here is Justice Douglas' concurring opinion. He declared that "The right of commuters to be free from forced intrusions on their privacy precludes the city from transforming its vehicles of public transportation into forums for the dissemination of ideas upon this captive audience."

The *Lehman* case and other captive audience cases support the view that there may be interests competing with first amendment considerations—in the case of subliminal communication, privacy and autonomy concerns, which Ms. Phillips talked about. In fact, the court performs a balancing act looking at the extent to which communication is inhibited and the extent to which we as a society wish to promote the countervailing values, interests or rights served by enforcing the inhibition.

In the captive audience area, the court also looks at the extent to which the recipient of the communicator can move away from the speech at will, by averting his eyes or getting away from hearing the speech. In fact, the Supreme Court has been unwilling to fashion an all-encompassing concept of a captive audience, because there are very few cases where someone could not close their eyes or, taking it to an extreme, wear earplugs.

Unfortunately, undisclosed subliminal communication poses an unusual kind of captivity since the audience cannot avert its eyes or shut its ears or retreat to private places if it does not even know that the communication is taking place. This is the highest degree

of captivity of all, and such captivity undermines not only the interests such as privacy, but the principles underlying the first amendment itself. We cannot have freedom of speech and privacy if one does not know this is going on.

One author suggested that "the claim to freedom from unwanted speech rests on grounds of high policy and on convictions of human dignity similar to if not identical with those classically brought forward in support of freedom of speech in the usual sense." My review of first amendment law suggests to me that, in balancing privacy issues and first amendment issues, regulation of undisclosed subliminal communication would pass constitutional scrutiny.

I would like to turn it back to Ms. Phillips who will wrap up our discussion who will discuss regulation available and the particular form of regulation we recommend.

Ms. PHILLIPS. I think we could sort out three kinds of remedies and I will try and do that focusing on the extent to which they address the autonomy and privacy concerns we have discussed and in terms of the legal challenges constitutionally that could be made.

First and most extreme remedy of course is the total prohibition of the manufacture, sale and use of subliminal communication devices. Obviously such action would eliminate any concerns we have and that we are discussing at this particular hearing and privacy and autonomy values would——

Mr. GLICKMAN. If I may, I read your statement in its entirety so if I can ask you some questions about it, maybe that would be more helpful.

[The prepared statements of Ms. Phillips and Ms. Goodkin follow:]

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TESTIMONY TO COMMITTEE ON SCIENCE & TECHNOLOGY

AUGUST 6, 1984

PART I

INTRODUCTION

In earlier testimony presented this afternoon, consideration was given to the various types of subliminal communication devices that are presently in use, the psychological explanations of subliminal communication technology, and the issues concerning the effectiveness of subliminal communication technology. In 1981, my colleague, Olivia Goodkin, and I coauthored an article for the Southern California Law Review in which we focused primarily upon the social, ethical, and legal issues associated with the advent of subliminal communication technology. This afternoon I will address the social and ethical issues that we believe are called into question with the use of various subliminal communication devices. Ms. Goodkin will address herself to the legal remedies that are, in theory, now available to a plaintiff who feels he has been wronged by a particular use of a subliminal device. I will then propose what we believe to be a reasonable legislative scheme for regulating future uses of subliminal communication devices.

INDIVIDUAL AUTONOMY CONCERNS

As we all are aware, various criticisms and objections have been advanced against the use of subliminal communication devices in certain contexts. Indeed as these devices are put to use in more numerous markets, real concerns are

generated that, at the very least, are worthy of some thought and consideration by our lawmakers. What underlies these concerns and what are the social values at stake with the advent of subliminal communication technology? Insofar as the devices involve a form of behavior control of which we may not always be aware, it is our position that individual autonomy and privacy rights are jeopardized.

Let me deal with the individual autonomy concept first and focus on what I mean when I refer to the concept of individual autonomy. Although the word autonomy defies any one definition, we know that it has something to do with the idea of being responsible for one's actions, choosing how one is going to act and controlling one's actions. In some sense, individual autonomy is threatened when subliminal communication is used without the knowledge of the individuals on whom it is used.

As Ms. Goodkin will discuss later, our legal system has historically given great protection to the individual autonomy of all people. Indeed, I would go so far as to say that it is one of the fundamental values underlying our system of government. In addressing the legal ramifications of the use of various forms of behavior control technologies, a legal scholar by the name of Professor Nathaniel Brandon encapsulated, in my view, the concerns that are at stake. Professor Brandon stated that the democratic system itself is based on the notion that people are capable of governing themselves. This capability arises out of "our ability to be explicitly aware of our own mental activities, to question their validity, to judge them critically, and to alter or correct them. Man has the power to regulate the actions of his own consciousness."

When subliminal communication devices are introduced, an individual's behavior is influenced or manipulated without that individual having the opportunity to immediately evaluate and think about the message that is input. Unlike other external influences of which we are consciously aware, a subliminal message arguably bypasses our sensory mechanisms and the mechanisms by which we typically evaluate, at some level, the external input of our environment.

The seriousness of this threat to individual autonomy values is, of course, measured by the level of effectiveness of subliminal communication devices. A very serious threat exists if such devices are capable of inducing a behavior that is totally contrary to one's normal predispositions. Consider, for example, a subliminal message that is capable of inducing a very health conscious individual to smoke cigarettes when he never before had such an inclination. In this extreme case, we are, in essense, a tool of the individual or entity who is programming the subliminal device.

The more realistic scenario is the case in which a subliminal message simply induces a person who is already predisposed towards a particular action to carry out that action. For example, a message may induce an individual who is hungry to overcome his self-control and eat some tempting food. Even in this case, the subliminal message has bypassed the normal sensory mechanisms. And, individual autonomy is still threatened insofar as this individual is not presented with the opportunity to question and evaluate the message that is being given to him. To the extent that our thinking and judgement capacities are reduced, we must consider the possibility that political and psychological freedom is simultaneously being threatened.

PRIVACY VALUES

A second set of social values that is jeopardized by the advent of subliminal communication technology revolves around the notion of individual privacy, and those aspects of privacy characterized as the "right of personhood." Great value, respect and protection has historically been accorded to human thoughts and mental processes regardless of how unhealthy or abnormal those processes may be. Subliminal communication technology allows one to enter an individual's mind and secretly manipulate its thought processes.

Legal scholar and professor Michael Shapiro studied various behavior control techniques that have been used on involuntarily incarcerated people, and reviewed various legal decisions restricting such uses. Distilled from these legal decisions, he postulates that the first amendment to our Constitution protects something that he calls the freedom of mentation or the right to be free from interference with our mental processes. Indeed, one could question the value of the enunciated freedoms of speech, association and religion without freedom of thought, the implicit underpinning of them all.

The same principles apply to an analysis of subliminal communication technology. The recipient of subliminal messages is in a highly vulnerable position and is very easily influenced and manipulated because he is not consciously aware that he is receiving the message. This is very different from the kind of impact that commercial advertisers may have through the use of billboards, radio and television. In the latter case, the recipient has the opportunity to consciously evaluate and consider the messages that bombard his senses and the crucial choice not to listen or watch at all.

The legal system has also historically protected the ideational content of each person's thoughts, regardless of whether or not such thoughts and ideas are morally reprehensible or potentially harmful. A classic example of such protection is reflected in a decision of the United States Supreme Court in Stanley v. Georgia, a 1969 case wherein the Court struck down a conviction for possession of obscene material. In its opinion the Court emphasized that private possession itself is not a crime and that any attempt to influence or control the moral content of a person's thoughts is ethically reprehensible and wholly inconsistent with the philosophy of the first amendment.

One eloquent description of the concerns at issue was provided by Mr. R. Schwitzgebel, in his article entitled "Psychotechnology-Electronic Control of Mind and Behavior". Mr. Schwitzgebel stated: "Privacy is no more and certainly

no less than the freedom of the individual to pick and choose for himself the time and circumstances under which, and most importantly, the extent to which, his attitudes, beliefs, behavior, and opinions are to be shared with or withheld from others." The applicability of this reasoning to subliminal communication technology is clear: no individual or government should have the unrestricted right to influence human attitudes, beliefs or behavior in a manner that is by definition beyond our control and knowledge.

It could be argued that the social benefits that are gained from the use of subliminal communication technology outweigh the negative consequences that flow from any infringement of individual autonomy and privacy rights. For example, one may argue that controlling shoplifting or discouraging people from smoking cigarettes, on balance, outweighs the injurious consequences of the infringement itself. Two responses can be made to that argument. First, social deviance and inappropriate behavior is, arguably, a necessary side effect of a free society. The alternative, a society whose minds are controlled and whose psychological freedom is diminished, is by no means preferable. Second, if we permit some socially beneficial uses of subliminal communication, we are then forced to empower some individual or agency with the task of "determining" what messages are good or bad, and what behavior is socially deviant or socially acceptable. Given the inherent difficulty of selectively regulating this technology's application, the implications of granting such wide-ranging powers to any group or agency, public or private, are quite sobering.

At this point, Ms. Goodkin will discuss various legal considerations associated with the use of subliminal communication technology.

PART II

(to follow Ms. Goodkin's presentation)

PROPOSAL FOR LEGISLATIVE CHANGES

As Ms. Goodkin pointed out, the individual civil remedies that would presently be available to those who feel they have been wronged by the use of subliminal communication devices are hardly satisfactory solutions to the concerns that have been raised. Given the recent proliferation of such devices, it is our position that legislative action should be taken. At this point, I will discuss three alternative legal remedies that would address the concerns that have been articulated and would prevent the infringement of rights that we have discussed. I will evaluate each remedy in terms of the extent to which it protects and vindicates the autonomy and privacy values that are at stake.

The first and most extreme remedy that could be implemented would be total prohibition of the manufacture, sale and use of subliminal communication devices. Obviously such action would eliminate all of our concerns about the undue infringement of privacy and autonomy values. In my mind, however, this is an unsatisfactory solution for several reasons. First, it raises constitutional questions. First amendment challenges may be asserted, based upon the argument that the most effective means of communicating a particular idea has been prohibited and that the alternative forms of communicating the same idea are not as adequate. Second, it could be argued that such a ban constitutes a prior restraint of speech and lacks the constitutionally mandated judicial balancing of speech and privacy interests. Both such arguments would probably fail insofar as the alternative means of communicating the same message, such as advertising, posting signs, etc., can, if properly used, be highly effective. Additionally, given the high degree of audience captivity involved with subliminal technology, the inhibition of speech resulting from such a ban may, on balance, be constitutionally permissible. Third,

it is our view that a total ban on the use of such devices is unnecessarily broad. Indeed the technological developments in this area are, in many cases, very positive and socially beneficial. To close the doors on such advances at this point is premature, given the issues concerning effectiveness that are still under consideration.

A second remedy, and one that is certainly less drastic, is the regulation of subliminal devices on the basis of the content of the subliminal message. Insofar as certain speech that is harmful to society is not protected by the Constitution, a regulatory scheme could be implemented that would ban messages that, for example, incite violence and allow messages that encourage people to stop smoking.

In our view, this kind of legal remedy also has serious shortcomings. First, a regulation that prohibits only certain kinds of messages still does not prevent the unknowing manipulation of thought processes and subsequent interference with decision-making processes, regardless of the societal value of such manipulation. Second, such legislation imposes a massive administrative burden. It would require the establishment of a regulatory agency that could monitor the manufacturers of subliminal devices and would also require the formulation of very complex statutory guidelines. Third, and most important, such a law would empower a few lawmakers, judges or administrators with the duty of determining what messages disseminated to the public are "good" and what messages are "bad".

The third, and in our view the optimal solution would be legislation requiring users of subliminal communication devices to disclose the fact that such devices are in use in a particular location and the precise content of the message that is transmitted. Such a restriction would not attempt to govern the content or location of the messages that are disseminated.

Arguably, this approach resolves most of the concerns that have been addressed in our discussion. First, it decreases the threat to individual autonomy and privacy values insofar as once an individual is made aware of the message itself, he is capable of evaluating the content of the message and will have freely made the decision to subject himself to subliminal communications techniques. Second, this remedy does away with the need for a case-by-case review and the attendant problems of inefficiency, expense and difficulty of application that are present in a remedy that regulates subliminal communication based upon the content of the message. Third, this remedy does not ban a potentially beneficial technological development. Fourth, the prohibitively expensive private right of action that Ms. Goodkin discussed would no longer be the only viable remedy. And, finally, disclosure requirements in all probability would survive first amendment challenges. The recipient is no longer a captive audience when he is aware of the communication and can choose to leave it. Additionally, an entire medium of communication is not shut down.

Although this seems to be the optimal remedy, it should be noted that there would certainly be some pitfalls in this scheme of disclosure regulations. First is the problem of enforcement. By their very nature, subliminal communication devices are not easily detected. Second, although an individual may decide whether he wants to subject himself to such influences, there may still be situations where he has no alternative place to be or no true understanding of the meaning of his tacit consent. Such may be the case if the devices are used, for example, in all public buses or in all shopping malls. Finally, if subliminal communication is capable of inducing an individual to behave in a manner that is totally contradictory to his normal way of behaving, there is still some reason for concern over the massive power such a technique may have in controlling human behavior.

Arguably we can live with these shortcomings. On balance, the disclosure requirements will insure that undesirable uses of subliminal communication will at least be limited. The effect on the device user of having to disclose the message publicly will probably provide the most effective restraint against socially unacceptable messages being transmitted. Commercial users of the device will be hesitant to use a message that will offend their clientele. Indeed this is the most powerful aspect of this relatively innocuous statutory scheme of disclosure. Furthermore this kind of legislation would not preclude further technological advancement, allowing society to continue benefiting from those aspects of subliminal communication technology that are deemed to be socially useful.

STATEMENT OF OLIVIA GOODKIN

SUBLIMINAL COMMUNICATION

I would like to address some of the options available for dealing with subliminal communication technology.

The first option is to do nothing at all. If subliminal communication is not regulated, then individuals who feel that they have somehow been harmed or offended by subconscious messages can resort to the judicial system by suing the transmitters of secret messages or by suing the manufacturers of the devices. Apart from the first amendment rights that would be preserved by permitting use of subliminal technology, an argument in favor of private lawsuits is that the market will adjust in response to the lawsuits, as it does every other area of consumer safety and health. For instance, if the lawsuits are burdensome enough for the manufacturers and transmitters, they will either take their products off the market or issue warnings regarding the content of the subliminal message.

There is much precedent for personal injury lawsuits in general, where a person has been harmed by a defective or hazardous product. More specifically, there is precedent in the area of tort law for actions based on invasion of privacy. Primarily the privacy actions have dealt in the areas of bugging, harrassment from news reporters, and other more traditional intrusions.

For instance, in the case Pearson v. Dodd, a 1969 federal case arising in the district in which we are now sitting, two of Senator Dodd's aides removed files from his office. The thieves replaced the files after copying pertinent information. The information reached a publisher who did indeed publish the stolen information. Senator Dodd unsuccessfully sued the publisher for intrusion of privacy. In support of its ruling, the court stated that the publisher had received third party information so the tort of intrusion of privacy was not good as against the publisher. In other words, the publisher had not violated the Senator's personal sphere of privacy. But the court then went on to state that Senator Dodd very possibly would have succeeded on his tort action if it had been brought against the thieves themselves, those who invaded the private sphere of his files. The court supported "the extension of the tort of invasion of privacy to instances of intrusion, whether by physical trespass or not, into spheres from which an ordinary man...could reasonably expect to be protected."

At first glance it seems that subliminal intrusion upon the private sphere of one's mental processes is similar to the Pearson v. Dodd case or a more typical bugging case. But all of the typical intrusion actions deal with either gathering information from the victim or observing what the victim has to say. Subliminal communication differs, as it involves sending information to a person's mind. This

difference alone may be enough to impede a successful action for intrusion based on subliminal communication. There simply is no precedent for a case dealing with subliminal communication, although much of the language in the typical intrusion cases supports expansion of the tort into new areas.

Even if there is some precedent in the law for bringing a lawsuit based on subliminal intrusion, private actions are a poor means of addressing the problem. The cost of a lawsuit is now prohibitive for most citizens. Moreover, in most cities lawsuits take four to five years to go to trial, long after any injury has occurred. Taking any case to court can be a most traumatic experience for those of us who do not spend much of our careers inside of the courtroom. There are other pitfalls to a private action such as proving that injury has occurred. Subliminal intrusion trials would require a never-ending parade of experts: doctors, psychologists, and research scientists to explain the effect or harm of subliminal communication. Because of all of the problems associated with private actions for subliminal communication intrusions, it seems that some form of regulating subliminal communication is the better course of action.

Before I summarize for you the past state and federal legislative efforts at regulating subliminal communication technology, it is essential that we examine

whether regulation of a form of speech would be upheld if challenged on first amendment grounds.

Although the first amendment guarantees freedom of speech we all know that such freedom is not absolute. The Supreme Court has upheld various laws that regulate freedom of speech; however, I would like to focus on examples of laws most relevant to the issue before us. The area of first amendment law most analogous to subliminal communication is the case of the captive audience.

The case of Lehman v. City of Shaker Heights provides an example. The city had a policy of excluding political advertising in city buses. The Supreme Court upheld the restrictive policy. Of interest here is Justice Douglas's concurrence. He declared that "the right of commuters to be free from forced intrusions on their privacy precludes the city from transforming its vehicles of public transportation into forums for the dissemination of ideas upon this captive audience."

The Lehman case and others support the view that there may be interests competing with first amendment considerations -- in the case of subliminal communication, privacy and autonomy concerns. In fact, the Court performs a balancing act looking at the extent to which communication is inhibited and the extent to which we as a society wish to promote the countervailing values, interests or rights served

by enforcing the inhibition. In the captive audience area, the Court also looks at the extent to which the recipient of the communicator can move away from the speech at will, by averting one's eyes or getting away from hearing the speech. In fact, the Supreme Court has been unwilling to fashion an all-encompassing concept of a captive audience, because there are very few cases where someone could not close their eyes or, taking it to an extreme, wear earplugs.

Unfortunately, subliminal communication poses an unusual kind of captivity since the audience cannot avert its eyes or shut its ears or retreat to private places if it does not even know if communication is taking place. This is the highest degree of captivity of all, and such captivity undermines not only interests such as privacy, but the principles underlying the first amendment itself. One author suggested that "the claim to freedom from unwanted speech rests on grounds of high policy and on convictions of human dignity similar to if not identical with those classically brought forward in support of freedom of speech in the usual sense." My review of first amendment law suggests to me that, in balancing privacy issues and first amendment issues, regulation of undisclosed subliminal communication would pass constitutional scrutiny.

I would now like to summarize for you past and current attempts to regulate subliminal communication. The largest flurry of regulatory activity occurred in the late

1950's when subliminal communication made its mass media debut. In 1958, the New Jersey Assembly created the Commission To Study Subliminal Projection. The Commission concluded that the mere existence of subliminal influences would, despite uncertainty as to its effectiveness, warrant legislative protection of the right of privacy. A statute requiring disclosure was proposed but was not enacted. Statutes banning the use of subliminal messages were proposed in New York and California at that time, but also did not become law. In 1958, members of Congress urged the FCC to investigate the possibility of control or prohibition of subliminal advertising. Proposals were then made during the next two years. For instance, a bill subjecting subliminal users to a fine of $5,000.00 and/or thirty days in prison was aimed at preventing subliminal use in advertising altogether. Another bill proposed to forbid any subliminal message transmission. None of these proposals became law.

In California, a bill is now pending before the Senate Judiciary Committee. In fact, there will be a hearing on the bill tomorrow in Sacramento. In its present form, the bill prohibits subliminal advertising or the use of subliminal messages in commercial settings without notice to the public of the existence and content of the message. "Commercial settings" include sales meetings, boat shows, department stores and the like. The bill is structured as a

consumer fraud protection law so that the state and local law enforcement agencies will be empowered to pursue an individual's claim made under the bill.

Ms. Phillips will now wrap up our presentation by discussing various kinds of regulation available and the particular form of regulation that we recommend.

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The Subconscious Taken Captive: A Social, Ethical, and Legal Analysis of Subliminal Communication Technology

> Imagine the state of some respectable and upright citizen after spending an enchanted evening in his favorite movie-house. His conscious mind has been devoted to following the impeccable tale of how boy gets girl through a long series of delectable and decorous adventures to the final clinch. He expects, and he has every right to expect, to emerge cheered, holpen and no doubt edified. Instead of which he finds his libido bucking and rearing under the impulsion of monstrous desires. He is all unaware that his *id* is attainted, having been subjected for two hours and a half to the frightful admonition, "Vote for Faubus for President."
>
> He would be a ruined man. More than that, if he ever got an inkling of the truth, he would be a man who would never set foot in a movie-house again, which would unquestionably be the ruin of the republic. Some there be, however, who take refuge in the theory that advertising is not responsible for all phenomena, that some people drink Coca Cola because they like its taste, and would not drink cyanide of potassium even if the urge to do so were ever before their eyes.[1]

Thus responded one editorialist in 1957 to a wave of harshly worded news stories critical of a new technique being used in movie theatres to market popcorn and soft drinks. Unknown to the movie viewers, their taste buds and pocket books were being manipulated by split-second screen messages encouraging them to indulge in the theatre concessioner's products.[2] After the Federal Communications Commission issued a strong statement of "concern,"[3] the method, known as subliminal communication, apparently fell into disuse, and the public outcry subsided.

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1. Johnson, *The Superficial Aspect—The Unconscious Itch*, THE NEW REPUBLIC, Nov. 11, 1957, at 8.
2. *See* Athens, *Beware. Here Come the Mind Manipulators*, FAM. HEALTH, Dec. 1978, at 39.
3. *Id.*

Then, some twenty years later, a news release reported that similar techniques were being used in department stores across the country to control shoplifting. A shopper gazes longingly at a scarf on a display counter, picks it up and furtively shoves it into her pocket. Then, as she is about to leave, she appears to have a change of heart. She pulls the scarf from her pocket and returns it to the counter.[4] The victory is credited to a kind of "electronic conscience": a message quietly repeated in background music playing throughout the store, encouraging shoppers to be honest.[5]

Debates about the moral, legal, and ethical dilemmas posed by various forms of behavior control are not a recent development.[6] However, current technological innovations in this area have generated heated debate over newly created problems that are not easily resolved by reference to any traditional framework for evaluating issues and solutions. The issues surrounding the use of subliminal communication comprise the narrow focus of this Note. However, the discussion and conclusions drawn are intended to have broader application: subliminal communication is but one of many recent sophisticated developments in the area of human behavior control.[7]

The first section of this Note presents an overview of subliminal communication technology, its uses, mechanics, psychological underpinnings, and effectiveness.[8] The second section of the Note explores the controversy over the use of subliminal persuasion techniques and analyzes the moral, ethical, and social issues involved.[9] The third section of the Note explores the current legal system's protection of individual privacy and autonomy values when subliminal persuasion techniques are used.[10] Because current legal protection in this area is inadequate, the last section of the Note suggests various forms of governmental regulation to correct the problem. Since such regulatory ac-

4. This scenario was described in *Secret Voices*, TIME, Sept. 10, 1979, at 71.

5. *Id.*

6. *See generally*, V. PACKARD, THE HIDDEN PERSUADERS (1958); Branden, *Free Will, Moral Responsibility and the Law*, 42 S. CAL. L. REV. 264 (1969); Johnson, *supra* note 1, at 8.

7. For example, behavior modification techniques are frequently used to control obesity, alcoholism, and some phobias. *See generally*, A. WESTIN, PRIVACY AND FREEDOM (1970) (considering the social implications of certain kinds of "psychological surveillance" through the use of personality testing, polygraphs, and related psychological instruments); Shapiro, *Legislating the Control of Behavior Control: Autonomy and the Coercive Use of Organic Therapies*, 47 S. CAL. L. REV. 237 (1974) (discussing some of these issues in the context of medical and surgical techniques used to control certain mental illnesses and disorders).

8. *See* notes 17-87 and accompanying text *infra*.

9. *See* notes 88-173 and accompanying text *infra*.

10. *See* notes 178-261 and accompanying text *infra*.

tion intervenes in a constitutionally sensitive area, first amendment considerations will be explored.[11] Ultimately, the Note proposes a regulatory scheme that requires full disclosure of the use of subliminal communication devices and the content of their messages. It argues that this form of regulation could survive constitutional free speech challenges and could provide adequate protection for the individual rights endangered.[12]

I. THE TECHNOLOGY OF SUBLIMINAL COMMUNICATION

The idea that people may be influenced by stimuli of which they are not consciously aware dates back to 400 B.C. in the writings of Plato and Aristotle.[13] It was not until the mid-1800's, however, that the notion of subliminal perception emerged as a psychological construct and a subject of experimentation and research.[14] Since that time, the amount of attention subliminal communication has attracted in both scientific[15] and popular literature[16] has fluctuated as new technology and research findings have been publicly disclosed.

A. Definition, Mechanics, and Uses of Subliminal Communication Technology

1. *Definition and Mechanics of Subliminal Communication*

Like many psychological phenomena, "subliminal perception" does not lend itself to any one precise or absolute definition. One general

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11. *See* notes 262-337 and accompanying text *infra*.

12. *See* notes 338-375 and accompanying text *infra*.

13. *See* N. Dixon, Subliminal Perception—The Nature of a Controversy (1971). In a brief survey of very early references to subliminal perception, Dixon notes such an allusion in Plato's *Timaeus*: "A process of disturbance of our normal state, if sudden and considerable, is painful, but the return to the normal, on the contrary when sudden and considerable, pleasant; a gentle and inconsiderable process is imperceptible, but its opposite perceptible. And any process which runs its course with facility is eminently perceptible." N. Dixon, *supra*, at 6 (quoting Plato's *Timaeus and Critias*, (E. Taylor trans. 1929)). Dixon also asserts that Aristotle was the first to consider the possibility that unperceived sensory stimuli influence dreams. *Id.* at 7. *See* Aristotle, Parva Naturalia 462b, (J. I. Beare trans. 1908).

14. N. Dixon, *supra* note 13, at 8. Dixon provides a textbook-like account of the extensive research in this area and the controversy surrounding the hypothesis of subliminal perception. *See also* A. Westin, *supra* note 7, at 288. As early as 1917, an Australian neurologist, Otto Poetzl, studied the effects of subliminal perception on dream activity. *Id.*

15. *See, e.g.*, N. Dixon, *supra* note 13, at vii, 5-10, (summary and analysis of all experimental research done worldwide in the area of subliminal perception and communication).

16. *See, e.g.*, W. Key, Media Sexploitation (1977) [hereinafter cited as Media Sexploitation]; W. Key, Subliminal Seduction (1974) [hereinafter cited as Subliminal Seduction]. Both these sources are fascinating, although somewhat sensational, exposés of sophisticated techniques used by Madison Avenue marketing forces.

description of subliminal perception is: "the process whereby individuals and groups can be presented with visual and auditory information without their being consciously aware of exposure to this information but to which they make a selective response."[17] The message, in the form of printed words, pictures, or voices, is presented either so rapidly or so faintly that its receiver is not consciously aware of having seen or heard anything.[18]

It was not until the 1950's that the technology was perfected and devices utilizing the theory of subliminal perception entered the marketplace.[19] An individual may now be exposed to subliminal messages through either visual or audio means. A visual subliminal message is typically relayed by the instantaneous superimposition of a picture or printed words over a television or movie picture.[20] In 1957, two rival companies simultaneously announced that they had developed devices employing such techniques. James Vicary, a marketing and motivational research specialist, announced in September 1957 that his company, Subliminal Projection Inc., had developed an advertising technique that was being tested in movie theatres to sell soda and popcorn.[21] Vicary's studies claimed a significant increase in sales credited to the use of his subliminal device.[22] Shortly thereafter, Precon Process and Equipment Corporation of New Orleans announced that it had been studying subliminal communication since 1950 and had applied for a patent a year before Vicary's company.[23]

Subliminal messages have been visually projected in both television and film. In television, a tachistoscopic device is used that mixes the message with the regular video signal and periodically flashes the

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17. J. KATZ, J. GOLDSTEIN & A. DERSHOWITZ, PSYCHOANALYSIS PSYCHIATRY AND LAW 274 (1967) (quoting *Public Hearings of the New Jersey Assembly Before the Commission to Study Subliminal Perception* (1958)) [hereinafter cited as KATZ]. The Commission was created by N.J. Conc. Res. No. 33, Creating Commission to Study Subliminal Projection (1958).

Technically, a definition of subliminal perception could encompass a much broader class of phenomena, including many naturally occurring stimuli of which an individual is unaware, but which affect behavior. *Id. Cf.* N. DIXON, *supra* note 13, at 12-13, 27 (describing the range of phenomena appropriate to the term).

18. A WESTIN, *supra* note 7, at 279.

19. *Id.*

20. *Id.*

21. Vicary demonstrated equipment used in a New Jersey theatre that flashed the words "Drink Coca-Cola" and "Hungry? Eat Popcorn" on the screen at a speed of 1/3000th of a second every five seconds. *Id. See also The Phantom Plug*, TIME, Nov. 18, 1957, at 46.

22. After a six week testing period involving 45,699 patrons, popcorn sales were said to have increased by 57.7%, Coke sales by 18.1%. *Id.*; A. WESTIN, *supra* note 7, at 279.

23. *Id.* at 281-82.

message for a fraction of a second.[24] More recent innovations have eliminated the need for the tachistoscopically projected message and have replaced it with a simpler method based on varying light intensities of a projector. This method is supposedly both cheaper and more effective.[25]

In film, the visual subliminal message is communicated by a simple film editing technique: single-frame shots of the message are intercut into the film sequence of a movie. Since a single frame passes through the projector very rapidly, the viewer is not consciously aware of having seen it.[26]

Recently, the same concepts have been used to create an audio subliminal communication device that relays subliminal messages through loudspeakers playing background music at the same time.[27] The device, labeled a "subliminal sound conditioning system,"[28] is a small box, with the capacities of a sound mixer, that combines music with a verbal message repeated 9,000 times per hour at a decibel level not consciously heard by the listener.[29] Several department stores have recently begun using this repeating subliminal audio message to discourage shoplifting.[30]

Three criteria for definition of subliminal perception have been outlined by Norman Dixon, an authority in the field, based on his own research and the findings of other researchers. They are:

(1) The eliciting of contingent responses by stimulation below the absolute awareness threshold, where this threshold is itself defined as the lowest level of stimulus energy at which the subject *ever* reports hearing (or seeing) anything of the stimulus.

(2) The retrospective reporting by the subject that he neither saw nor heard anything of the stimulus.

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24. For a detailed description of the electronic/engineering aspects of Dr. Becker's "Precon TV," see Griswold, *TV's New Trick: Hidden Commercials,* POPULAR SCIENCE, Apr. 1958, at 95-96.

25. SUBLIMINAL SEDUCTION, *supra* note 16, at 22-23.

26. MEDIA SEXPLOITATION, *supra* note 16, at 102-05.

27. *Secret Voices, supra* note 4, at 71.

28. H. Becker & E. McDonagh, Subliminal Communication (Subliminal Psychodynamic Activation) in Rehabilitative and Preventive Medicine 2 (abstract of a presentation to the 9th Annual Meeting of the Society for Computer Medicine, Nov. 8-11, 1979 in Atlanta, Georgia) (on file with Southern California Law Review) [hereinafter cited as Subliminal Psychodynamic Activation]. Becker designed this device while working at the Behavioral Engineering Center, of which he is director, in Metairie, Louisiana. *Id.*

29. *Secret Voices, supra* note 4, at 71. For a detailed description of the electronic engineering aspects of the device, see Subliminal Psychodynamic Activation, *supra* note 28, at 2.

30. *See* notes 44-48 and accompanying text *infra*.

(3) The occurrence of contingent responses, without reported awareness of the stimulus, that differ qualitatively from those elicited by the same stimulus when presented *above* the awareness threshold.[31]

2. *Uses of Subliminal Communication Technology*

Over the past twenty years, the marketing and use of devices employing subliminal communication have been sporadic. This is due primarily to doubts about the effectiveness of the technique,[32] public concern over the ethics of using the technique on an unknowing public,[33] and a series of warnings that questioned the legality of the devices in certain

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31. N. DIXON, *supra* note 13, at 18.

Another kind of persuasion technique, also popularly referred to as "subliminal," is not dependent upon a mechanically induced visual or audio message. This form of subliminal "art" embeds hidden images or words in photographs so that they will not be perceived by the consumer, but will nonetheless stimulate his desire for the product. *See id.* at 9. This technique apparently pervades the advertising and product marketing industry of Madison Avenue. *See generally* MEDIA SEXPLOITATION, *supra* note 16; SUBLIMINAL SEDUCTION, *supra* note 16.

Wilson Key, the author of MEDIA SEXPLOITATION, maintains that he found emotionally loaded or taboo words, particularly the word "sex," embedded in several thousand magazine covers, advertisements, news photographs, and other print media, purportedly to help increase sales. He describes the sophisticated methods developed in the advertising industry for accomplishing this effect: use of a transparent overlay, inscribed with the words, superimposed over a photograph; airbrushing techniques painting the words into hair, creases in clothing, facial lines, or rough background surfaces; and photoengraving techniques.

The desires induced by the hidden images are usually unrelated to the worth or use of the product itself. Typically there is an appeal to sexual drives. *See, e.g., id.* at 7-8. The author asserts that hiding the word "sex" in political campaign literature is a common device used by advertising agencies hired by politicians. He maintains that in a recent U.S. Congressional election in Virginia, "SEX embeds" were found in the campaign literature of all the candidates except one, who had not hired an advertising agency. *Id.* Key also argues that these "SEX embeds" can be found in Ritz crackers. Apparently the message is embedded in the molds pressing out the dough. *Id.* at 10-11.

In some respects, these advertising techniques are similar to the subliminal communication devices described in the text. To the extent that the embedded images constitute stimulation below the absolute awareness threshold, they may fall within the previous definition of subliminal perception. *See* text accompanying this footnote, outlining the three essential criteria of subliminal perception. However, there are two important distinctions between the visual and audio subliminal communication devices and the subliminally embedded art. First, the embedded messages are recognizable to the beholder if they are pointed out to him. In contrast, subliminally induced messages on film or in background music are, by definition, below the receiver's conscious perception. Second, in the case of subliminally embedded art, the receiver is at least aware that he is looking at an advertisement and being manipulated by it, although he may not be aware of the extent of that manipulation. Whether these are ethically and legally significant distinctions will be discussed later in this Note. *See* note 105 *infra*.

32. *See* text accompanying notes 74-87 *infra*.

33. *See* A. WESTIN, *supra* note 7, at 282-87. This concern is discussed in more detail in the text accompanying notes 88-177 *infra*.

contexts.[34] To understand the relevant issues, it is helpful to survey the contexts in which subliminal communication technology has been, and is being, employed.[35]

The tachistoscopic devices introduced in the late 1950's[36] were best suited to product advertising on television and in the movies. Visual messages such as "Hungry? Eat Popcorn" used in movie theatres, and "Get it!" used on television commercials for children's toys,[37] were used to encourage consumption while reducing the frustration caused by excessive advertising interruptions.[38] Warnings from the Federal Communications Commission led the television and radio industries to eliminate their use of subliminal communication devices.[39]

These restrictions did not, however, prevent the use of subliminal communications in commercial movie houses and on closed circuit television. Consequently, use of subliminal technology devices seems to be increasing. A corporation that distributes movies to major airlines announced in 1972 that it would begin selling spots for subliminal commercials to be inserted in the films they distribute.[40] A Louisiana corporation is using subliminal communication as the basis for an audiovisual mass media approach to the control of obesity.[41] Film makers are adopting subliminal perception techniques to " 'enhance sensory projections and dramatic values' to make TV entertainment seem better than it really is."[42] The Central Intelligence Agency has

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34. *See* notes 348-52 and accompanying text *infra*.

35. *See generally* Lander, *In Through the Out Door*, OMNI, Feb. 1981, at 45. This article provides an excellent overview of present uses of subliminal communication devices, the current state of subliminal technology, and the ethical issues surrounding its use.

36. *See* text accompanying notes 18-24 *supra*.

37. *Secret Voices*, *supra* note 4, at 71.

38. A. WESTIN, *supra* note 7, at 279.

39. *Secret Voices*, *supra* note 4, at 71. *See also* notes 345-52 and accompanying text *infra*.

40. MEDIA SEXPLOITATION, *supra* note 16, at 116. A 1971 telephone survey located thirteen commercial research firms in Chicago, New York, and Toronto offering mechanically induced subliminal message services to advertisers willing to pay the price. SUBLIMINAL SEDUCTION, *supra* note 16, at 23.

41. H. Becker & N. Glanzer, Subliminal Communication: Advances in Audiovisual Engineering Applications for Behavior Therapy and Education (printed in the Proceedings of the 1978 Institute of Electrical and Electronics Engineers Region 3 Conference (April 10-12, 1978), in Atlanta, Georgia). Dr. Becker's weight control program uses supraliminal signals to impart substantive information on nutrition, along with subliminal signals that provide an effective, mildly adverse stimulus to improper foods. *Id.* at 1. Preliminary results indicate an encouraging success rate.

42. *The Phantom Plug*, *supra* note 21, at 46 (quoting a representative of Experimental Films, Inc. of New Orleans). Subliminal techniques were recently employed in a major motion picture, *The Exorcist*. The producers were apparently effective enough in inciting fear and terror that their use of subliminal techniques is a major issue in a $350,000 lawsuit against Warner Brothers

investigated the possibility of using subliminal communication to implant suggestions or commands, to reduce a subject's resistance to hypnosis, or to affect political outcomes.[43]

Audio subliminal devices have equally diverse applications. The owner of the patent on these devices[44] has recently marketed an " 'honesty reinforcement and theft deterrent system.' "[45] Using the basic audio subliminal device,[46] the box combines music with the verbal message, "I am honest; I will not steal," repeated at a decibel level that shoppers are not consciously aware of hearing.[47] Approximately fifty department stores across the country have installed the device, and are claiming remarkable success in discouraging potential shoplifters from stealing.[48] The apparatus is also being used by employers to inspire employees to make sales,[49] and by the management of sports teams to inspire players to win games.[50] Recently, a New York real estate office began to use the device to encourage employee sales: "My time is Valuable . . . Dollars Now . . . Reward is Coming . . . I Feel Good."[51] Dr. Hal Becker, the inventor of the audio device, is currently engaged in applied research using subliminal communication in a rehabilitative and preventive medicine clinic to allay patients' anxiety and to help them relax, to enhance cooperation among hospital staff, and to deter cigarette smoking among clinic staff and patients.[52] Becker argues that

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for injuries sustained by one viewer when he fainted and broke his jaw shortly after seeing a subliminal death mask. Lander, *supra* note 35, at 47-48, 107; *Secret Voices, supra* note 4, at 71. For a detailed examination of the extensive use of subliminal techniques in this movie, see MEDIA SEXPLOITATION, *supra* note 16, at 98-116. Interestingly, William Blatty, the author of the novel on which *The Exorcist* is based, is a former CIA operative who served as the policy-branch chief of the Psychological Warfare Division of the U.S. Air Force. *See* Lee, *The CIA's Subliminal Seduction*, HIGH TIMES, Feb. 1980, at 96.

43. Lee, *supra* note 42, at 96. According to previously classified documents, the CIA tested subliminal manipulation in movie theatres during the late 1950's and in a document on these studies speculated "that subliminal projection can be utilized in such a way as to feature a visual suggestion such as 'Obey [deleted].' " *Id.* The extent of the CIA research is unknown.

44. *See* note 28 and accompanying text *supra*.

45. ATHENS, *supra* note 2, at 38 (quoting from interview with H. Becker, inventor of the device).

46. *See* text accompanying notes 27-29 *supra*.

47. ATHENS, *supra* note 2, at 38.

48. *Secret Voices, supra* note 4, at 71. The device is said to have saved one East Coast department store chain $600,000 through a 37% reduction in thefts over a nine-month period. *Id.*

49. A real estate office in Canada is attempting to increase its profits by playing to its sales force the subliminal message "I love real estate. I will prospect for new listings for clients each and every day." *Id.*

50. Dr. Becker's company has provided the Montreal Canadiens hockey team and an unidentified National Football League team with the device. *Id.*

51. Lander, *supra* note 35, at 46.

52. Subliminal Psychodynamic Activation, *supra* note 28, at 1-2. In describing the proce-

if subliminals were used through a form of mass media such as television, they could be aimed at serious societal dangers such as drug abuse, bad driving, and phobias.[53]

The various uses of subliminal persuasion are known only because they have been disclosed by those who market or use the devices. The mechanics of subliminal communications make the message difficult or impossible to detect, since it is designed to bypass conscious perception. Visual subliminal messages relayed by insertion of a single-frame message into a film[54] can be detected only by running the film slowly enough to distinguish individual frames.[55] Moreover, the tachistoscope and similar recently invented devices[56] were specifically designed not to be detectable, in order to maximize effectiveness and minimize negative public response.[57] It is also difficult if not impossible to prove that audio subliminal devices[58] are being used, since the intended message is made inaudible by music or voices played over it and blended together on a single track.[59] Thus, unless those who implement subliminal techniques freely admit doing so, it will be impossible to make a complete survey of the kinds and extent of past and current uses of subliminal communication devices. Further, because of public disapproval of subliminal sales techniques, those who use such techniques are reluctant to admit their use.

The most obvious motive for not disclosing the use of subliminal devices is the desire of the users of the device to avoid public criticism. The threat of public criticism also provides a disincentive to disclosure for those marketing the device. For example, Dr. Becker, the inventor, did not originally support covert use of his theft control devices and intended to install them only if storeowners publicly disclosed use of

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dure used in this context, Becker characterizes the subliminal message as "carefully chosen verbal words and phrases (affirmations) delivered at normal speech rate, designed: 1) to link up with and activate pre-existing unconscious healthy wishes, drives and value systems; and 2) to impart to the unconscious new and useful substantive, therapeutic and educational information." *Id.* at 2.

53. *Secret Voices, supra* note 4, at 71.

54. *See* text accompanying note 26 *supra*.

55. Athens, *supra* note 2, at 40. *See also* SUBLIMINAL SEDUCTION, *supra* note 16, at 102.

56. *See* text accompanying notes 24-25 *supra*.

57. SUBLIMINAL SEDUCTION, *supra* note 16, at 23. One of the reasons offered by the research director of a major national food product distributor for discontinuing use of the tachistoscope and the substitute use of a low intensity light projector, was that the latter could not be detected by the human eye. *Id.*

58. *See* text accompanying notes 27-29 *supra*.

59. Athens, *supra* note 2, at 40. *But see id.* at 40, where Becker, the inventor, indicates that an individual can hear subliminal messages if he knows in advance what to listen for and is in a quiet atmosphere conducive to total concentration.

this subliminal technique. However, Dr. Becker changed his mind when he found that storeowners were unwilling to buy the devices from him if disclosure to store customers was required.[60] A recent survey of the extent to which subliminal devices are used reflects the reticence of those employing subliminals to admit such use. The survey reported on researchers' conversations with heads of department store chains, representatives of the Metropolitan Board of Trade in Washington, D.C., and the Director of Public Information for the Law Enforcement Assistance Administration of the Department of Justice. Based on the information obtained in the survey, the researchers concluded that the interviewees generally either did not know that subliminal devices were being used, or they would not admit it.[61]

Recently declassified materials document CIA interest in subliminal communication during the late 1950's.[62] These documents suggest that government use of subliminal techniques could proliferate and yet remain undisclosed for national security reasons.[63] Therefore, the extent and types of uses to which subliminal communication devices are being put may never be completely determined.

B. Psychological Theories Explaining Subliminal Communication

Explanations of how stimuli below a threshold of conscious recognition are capable of influencing human behavior are inconclusive. There are a number of psychological theories based on study of the effects of subliminal persuasion on behavior in carefully controlled experimental settings.[64] These theories suggest that subliminal perception can be described on the basis of an assumption that there are two levels of mental activity. The conscious level is characterized by the ability to recall and to discuss immediately surrounding events. At the preconscious level, mental activity takes place that is not capable of being immediately recalled and discussed.[65]

60. *See id.*

61. *Id.* at 42.

62. *See* note 43 and accompanying text *supra*.

63. *See* Lee, *supra* note 42, at 96.

64. *See generally* N. Dixon, *supra* note 15. This work is the most comprehensive compilation of laboratory research and the most thorough exposition of a theory of subliminal perception from the perspective of an experimental behavioral psychologist. The discussion of research findings in this Note is merely intended to familiarize the reader with the basic characteristics of subliminal perception, and is not presented as a comprehensive or representative survey of issues critical to the experimental psychologist.

65. Katz, *supra* note 17, at 274.

A simplified explanation emphasizes the presence of two centers in the brain receiving stimulation from the external environment:

> One center is responsible for registering a stimulus, and the other for bringing it into consciousness. The first center is far more sensitive than the second, so that a very weak stimulus (such as the low-volume words hidden below the music) will register in the mind, but it won't come into consciousness.[66]

These two levels of mental activity may explain the effectiveness of the "theft deterrent" subliminal device[67] which operates when an individual "hears" the subliminal message:

> [Y]ou don't need the information at the moment, [and] your brain screens it out before it reaches your "awareness" center—your conscious mind. But should you reach the point where you are about to steal something, within a half hour or so after receiving a stimulus telling you *not* to do so, your subconscious mind might recall that stored information and make use of it. If a moment ago you impulsively thought you just might take those tempting earrings you can't afford, a moment later you would just as impulsively decide not to. And you'd never know why.[68]

Unfortunately, the inclination to describe psychological phenomena using terms such as "brain centers" and "awareness centers" is misleading rather than helpful, for there is no psychological evidence clearly proving that a particular part of the brain is the "center" of "subconscious" activity.[69]

However, research on the neurological and physiological aspects of subliminal perception provides support for many of the psychological theories proposed thus far.[70] This research is still in a formative stage, however, and has not yet provided a comprehensive physiologi-

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66. Athens, *supra* note 2, at 40 (quoting Lloyd H. Silverman, Ph.D., Adjunct Professor of Psychology at New York University).

67. *See* text accompanying notes 44-48 *supra*.

68. Athens, *supra* note 2, at 40 (quoting Lloyd H. Silverman, Ph.D., Adjunct Professor of Psychology at New York University).

69. *See* D. HEBB, TEXTBOOK OF PSYCHOLOGY 3-4 (1972).

70. *See generally* N. DIXON, *supra* note 13, at 245-86; Schwartz & Shagass, *Physiological Limits for Subliminal Perception,* SCIENCE, Mar. 31, 1961, at 1017; *The Electric Mind—Short Reactions Stay Unconscious,* SCIENCE NEWS, Dec. 31, 1967, at 63. One such study was conducted on patients undergoing brain surgery for Parkinson's disease and cerebral palsy. Researchers found that electrical stimulations to the skin not strong enough to be felt provoked one kind of wave response in the brain, while stimulations strong enough to be felt provoked another kind of wave. It was theorized that conscious experience, or awareness of a stimulus, involves the latter type of brain response; whereas weak, or subliminal, stimulation involves the former. This experiment could provide a foundation for explaining how behavior is subsequently affected by subliminal communication. *Id.*

cal explanation of the perceptual processes involved. Hence, the current understanding of subliminal perception is essentially limited to descriptions of external behavior rather than of the internal operations of the brain and the central nervous system.

Some psychologists maintain that subliminal perception is a natural activity that occurs all the time.[71] In an environment that bombards the senses with a multitude of sensory stimulations, *e.g.,* temperature changes, noise, and lights, human behavior is constantly reacting, adapting, and changing in response to external stimuli that are not consciously perceived.[72] Nevertheless, although the physiological and psychological mechanisms underlying the response to both naturally occurring and artificially imposed subliminal stimuli may be the same, a valid distinction between the two types of stimuli can be drawn. Naturally occurring stimuli are capable of being consciously perceived if attention is directed to them, whereas artificially imposed stimuli are delivered with the intention that the receiver will not be capable of consciously perceiving them. In addition, using artificially imposed subliminal stimuli to manipulate mental activity involves intrusiveness and control by third persons, not present in the case of naturally occurring stimuli. Later discussion will demonstrate that this distinction is both ethically and legally significant.[73]

C. The Effectiveness of Subliminal Communication Devices

Although the psychological and physiological mechanisms underlying subliminal perception are not fully understood, it is now a generally accepted and scientifically well supported view that subliminal perception does occur—that people are capable of receiving and responding to information presented to them at levels below the threshold of conscious recognition.[74] A question of greater interest, and one of the fo-

71. Katz, *supra* note 17, at 270 (quoting testimony of Dr. Zygmunt A. Piotrowski, Clinical Professor of Psychology and a member of the Department of Psychiatry at the Jefferson Medical College in Philadelphia, before the New Jersey Assembly Committee).

72. *Id.* Dr. Piotrowski's testimony provides an illustration of this phenomenon: an individual who falls asleep while listening to the radio or television but promptly wakes up when someone turns it off. The individual, without being aware of it, interprets the sudden silence as a marked change in his immediate surroundings, and this decrease in subliminal auditory stimulation wakes him up. "When we perceive anything specific, we attach meaning to it. And any meaningful change in the environment subliminally perceived or supraliminally perceived may cause a very definite reaction on the part of the person." *Id.*

73. *See* text accompanying notes 88-177 *infra*.

74. A. Westin, *supra* note 7, at 288-90. As early as 1917, Dr. Otto Poetzl researched the impact of subliminal stimulations and demonstrated their effect on dreams. His subjects were unknowingly exposed to tachistoscopically projected landscape scenes. Later, they reported de-

cuses of this Note, is the actual effectiveness of subliminal communication techniques. As will be demonstrated, there is much uncertainty about whether and to what extent subliminal messages can affect or change human behavior. Subsequent discussion of the moral and ethical problems posed by subliminal communication, and the proposals for regulation in this area, must be viewed in light of the uncertainty about its effectiveness.

Considerable controversy centers on whether the techniques are capable of inducing new behavior or only of strengthening behavior to which an individual is predisposed.[75] Nonetheless, several generalizations can be made about existing research findings. (1) *Individuals are*

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tails of the landscape scene in subsequent dreams. *Id.* Over the years, the Poetzl phenomenon has been confirmed by other researchers. *See* N. DIXON, *supra* note 13, at 103-52.

The theory of subliminal perception has met with some resistance, however. Dr. Robert Corrigan's 1958 application for a patent on his "apparatus for producing visual stimulation" was initially rejected by the Patent Office. *See* re Application #3,060,795, Communications from the Examiner, U.S. Department of Commerce, Patent Office, described in KATZ, *supra* note 17, at 167-69. This communication explained that Corrigan's claims describing the function and uses of the device were

> rejected as drawn to subject matter not within the statutory classes . . . . The concept of stimulating a conscious person with subliminal information, visual or otherwise, is not considered to be a tangible act but is something mental and within the will of said conscious person. Dealings with nervous systems and with eye retinas no doubt would result in discoveries but are of existing laws of nature and are not patentable . . . . "We do not find authority in the law for the issuance of a patent for results dependent upon such intangible, illusory and non-material things as emotional or aesthetic reactions."

Id. at 269 (quoting Greenewalt v. Stanley Co. of America, 54 F.2d 195, 196 (3rd Cir. 1931)). The patent was later granted by letter ruling in October, 1962. KATZ, *supra* note 17, at 267.

75. The following appears to be the most widely accepted view on the issue of effectiveness:

> Can any of these gimmicks really work? "Absolutely," says Jagdish Sheth, president of the American Psychological Association's Division on Consumer Psychology. "The controversy has always been over changing people's attitudes. That you can't do. What you can do is trigger a prior attitude or predisposition.
>
> "Buying popcorn and soda at a movie is acceptable behavior; so a subliminal advertisement about the products should work well. But selling a refrigerator in a movie theater wouldn't work. A subliminal cut in a horror movie will be very effective. Partly it's because people go to the movie to be scared and partly because fewer defenses are available against subliminal messages."
>
> Subliminal advertising won't make Avis Number 1. An early study found, for example, that showing the message "EAT BEEF" doesn't induce a craving for beef. It did, however, increase sandwich consumption in general. A consumer's "preference hierarchy" can't be changed by these methods, according to Del Hawkins, dean at the University of Oregon's School of Business. Instead, the effect of subliminal messaging will be spread over all similar products. Of course, that limitation doesn't render subliminal methods useless. In a supposedly dog-eat-dog world, many corporate canines would rather form a pack so that all might dine on a larger pie of consumer spending.

Lander, *supra* note 35, at 48.

For an overview of the problem of effectiveness and the controversial issues involved, see generally KATZ, *supra* note 17, at 272-73, 275-76, 279; A. WESTIN, *supra* note 7, at 280-91. For an interesting example of divergent popular attitudes toward the effectiveness of subliminal devices, *compare* THE NEW REPUBLIC, *supra* note 1, at 8, *with* Roper, *How Powerful are the Persuaders?*, SATURDAY REV., Oct. 5, 1957, at 13.

capable of receiving information presented at levels of which they are unaware, and will unconsciously evaluate and react to the content of the information, resisting negative content and more readily accepting positive content.[76] This might suggest that an individual censors subliminal information in the same manner that he censors or evaluates supraliminal information—responding in a predisposed manner so that he is no more easily manipulated or changed than if he had consciously perceived the information. If this is the case, subliminal communication would not be an effective brainwashing technique.[77] (2) *Individuals can be taught new responses at preconscious levels of awareness,*[78] *and can use subliminal information for more efficient problem solving.*[79] (3) *A predisposing behavior or response is not always necessary for effective subliminal suggestion, and certain new responses may be induced.*[80] This finding

76. KATZ, *supra* note 17, at 274. In testimony before a New Jersey Assembly Committee, Dr. Robert Corrigan of the Precon Corporation reported the results of one such study. Subjects were subliminally presented with words which differed in emotional content (*e.g.*, neutral words, such as apple and river; words with emotional meaning, such as death and blood; and words which are culturally taboo). The speed at which the words were presented was slowed down and subjects were asked to push a lever when they recognized a word. The results showed that subjects took two to three times longer to recognize and report seeing the emotional and taboo words. This suggests that the threatening words were being reacted to and resisted prior to conscious awareness. Research with subliminal information in the motion picture medium supported these results. *Id.* at 276-77.

This phenomenon, known as perceptual defense, has been the subject of extensive experimental research. For a comprehensive description and review of that research, see N. DIXON, *supra* note 13, at 179-222. Current studies in this area provide strong support for the view that the perceptual defense effect is a manifestation of sensory regulation. *Id.* If this is true, concerns about inducing others to behave in a manner totally contrary to their normal behavior are somewhat diminished.

77. KATZ, *supra* note 17, at 276.

78. *Id.* at 275-76. In one experiment subjects were subliminally presented with the emotionally neutral words used in the experiment described in note 76, *supra*. After each tachistoscopic flash of the word, the subject was given an electric shock, so that the shock would become associated with the neutral word. Then, as in the previous experiment, the speed at which the shock-associated words were presented was gradually slowed down until the subjects were able to report seeing the word. The results showed that the recognition threshold for these words increased. The subjects had learned a new response to information that was subliminally presented.

79. *Id.* at 276. Subjects in one experiment were asked to decipher a series of anagrams in the shortest time possible. Some of the subjects were subliminally presented with the answer to the problems before being given the problem to solve. The results showed that those subjects who were preconsciously presented with the answers solved the problem 15% to 46% faster than the group who did not receive the subliminal answer, a marked increase in problem-solving efficiency.

80. *See* A. WESTIN, *supra* note 7, at 280; *Supersoft Sale*, TIME, Sept. 9, 1957, at 67-68. New York University psychologists described an experiment they had performed in which subliminal messages induced subjects to think that a static portrait was changing expressions. A picture of the same expressionless male face was flashed on a screen, alternately with subliminal messages saying the words "angry" in one set of exposures, and "happy" in another. Although the subjects were unable to see the words, when they were asked to report how the facial expressions had

supports the concern that subliminal communication may cause people to do something they otherwise would not have considered—that it "manipulates" rather than "reminds."[81] (4) *Individuals do not react uniformly to subliminal messages presented at the same level of intensity and duration.* People have varying threshold levels for conscious recognition of stimuli.[82] This finding is not only relevant to whether a particular subliminal message is effectively presented to a particular individual, it is also a critical element in defining the term "subliminal communication" should one seek to restrict its use.[83] (5) *Certain personality characteristics may predispose some individuals to be more easily influenced by subliminal suggestion than others.*[84] Although this would tend to decrease the overall effectiveness of subliminal devices, there remains the critical question of exactly what impact a subliminal message will have on that more susceptible subgroup of the population. (6) *The effectiveness of subliminal communication may be somewhat dependent upon the motivational and emotional states of the receiver.*[85]

Despite the unresolved questions concerning the effectiveness of subliminal technology, it can be safely assumed that the techniques have more than a minimal effect on behavior. This Note argues that, to be objectionable, a subliminal technique need not be capable of induc-

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changed, they reported angry expressions when the word "angry" was flashed on the screen and happy expressions when the word "happy" was flashed. *Id.*

81. A. WESTIN, *supra* note 7, at 280. For example, referring to the New York University study, a television executive commented: "It smacks of brainwashing, but of course it would be tempting." *Supersoft Sale*, *supra* note 80, at 68.

82. KATZ, *supra* note 17, at 273-74.

83. For a discussion of the definition of subliminal communication, see text accompanying notes 17-18, 31 *supra*.

84. KATZ, *supra* note 17, at 271 (testimony of Dr. Piotrowski before the New Jersey Assembly). Although the evidence supporting this point is limited, there does seem to be agreement that a passive, withdrawn personality type is more easily affected by certain subliminal messages. *Id.*

85. There appears to be a complex relationship between subliminal stimulation, emotion, memory, and drive, but extensive research on this problem has not produced any definite conclusions. A survey of the literature is provided in N. DIXON, *supra* note 13, at 153-78. Several studies suggest that subliminal stimuli can affect overt behavior (*e.g.*, increase feelings of hunger, but not necessarily affect existing food preferences) if the stimuli are not contrary to a strong existing habit structure or opposite drive states (*e.g.*, subject already feels very full). *Id.* at 176-77. There is little support at this stage for the concern that subliminal suggestion could drastically manipulate psychological drives and the behavior connected with such drives. *Id.* at 176-78.

The effectiveness of subliminal stimulation in a particular situation, then, will depend on the strength of the relation between motivation and subliminal perception—a factor that the experimental literature does not yet conclusively establish. The implications of such a relation are significant: if the subliminal message appeals to a prejudice or need not previously acted on, the individual might be more sensitive to the message and be induced to act upon it (*e.g.*, message encouraging eating, when the receiver is hungry). *Id.* at 273, 275-77.

ing behavior that is totally contrary to an individual's ordinary predispositions.[86] Rather, at some point, it is objectionable that a subliminal communication encourages a particular activity to occur more frequently than it otherwise would occur.[87] The values that underlie these concerns are the focus of the following section.

II. ETHICAL AND SOCIAL ISSUES POSED BY SUBLIMINAL COMMUNICATION

Since its inception, subliminal communication technology has been bitterly opposed. Some see it as a frightening fulfillment of the Orwellian prophecy of secret control and manipulation of people's lives and behavior, while others dismiss it with cynical skepticism.[88] Whether or not the public's perception of the problem is accurate, ethical and social aspects of the problem merit attention.[89]

It is the position of this Note that autonomy and privacy are the core values threatened by subliminal communication technology. Because of the potential for insidious use of subliminal communication technology to control behavior, the use of this technology must be subjected to close scrutiny.[90] "The greatest threat to civil liberty occurs prior to public exposure in that no democratic determination has been made regarding legitimate applications of a technical innovation."[91] This section examines the underlying concepts of individual autonomy

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86. *See* text accompanying notes 113-19 *infra*.

87. *Id.*

88. For example, nationwide media coverage of film and television experimentation with subliminals during the 1950's reflected these typical reactions. A. WESTIN, *supra* note 7, at 280-88. The American public, in general, was appalled. One editorialist typifies this response:

> The subconscious mind is the most delicate part of the most delicate apparatus in the entire universe. It is not to be smudged, sullied, or twisted in order to boost the sales of popcorn or anything else. Nothing is more difficult in the modern world than to protect the privacy of the human soul.

Smudging the Subconscious, SATURDAY REV., Oct. 5, 1957, at 40. For a cynical response, see text accompanying note 1 *supra*.

89. *See generally* R. SCHWITZGEBEL & R. SCHWITZGEBEL, PSYCHOTECHNOLOGY—ELECTRONIC CONTROL OF MIND AND BEHAVIOR 241-66 (1973); Schwitzgebel, *Electronic Innovation in the Behavioral Sciences: A Call to Responsibility*, AM. PSYCHOLOGIST 364 (May 1967) (general outline of the assessment required for technological development in the behavioral sciences, and an application of the author's recommendation to related problems in that field). For an eclectic view of the role of advanced technology in society, see M. MCLUHAN, UNDERSTANDING MEDIA: THE EXTENSIONS OF MAN (1964); M. MCLUHAN & Q. FIORE, THE MEDIUM IS THE MESSAGE (1967) (exploration of the impact of electric technology—television, electricity, media, computers—on an individual's relationship to his family, community, society, and the world, as well as his perception of himself and the world).

90. R. SCHWITZGEBEL & R. SCHWITZGEBEL, *supra* note 89, at 242.

91. *Id.* at 243.

and personal privacy, explores the characteristics of subliminal techniques that the American public finds so offensive, evaluates whether that reaction is justified, and determines whether legislative, judicial, or administrative intervention is an appropriate response.

A. Individual Autonomy Concerns

In order fairly to evaluate the threat posed by subliminal devices, it is necessary to examine the characteristics of individual autonomy that make it such a highly regarded value. Concepts such as "autonomy" and "privacy" defy simple definition. Two recently articulated views of individual autonomy have been selected as a basis for discussion because of their particular applicability to the issues surrounding the use of subliminal technology.[92]

Professor Michael Moore evaluates autonomy in terms of two aspects of individual responsibility—a "retrospective" sense and an "overall" sense: "Retrospectively, we hold people responsible *for* certain events in the past. We make such ascriptions of responsibility based on a host of criteria, involving concepts of causation, intention, voluntariness, and action, and matters of justification or excuse."[93] Thus it can be said that an individual who points a gun at another person, pulls the trigger, and shoots, has *caused* the injury by his actions, *intended* the acts that caused the injury, and *willed* that his actions cause the result of injury. In terms of retrospective responsibility, it might also be said that this individual's actions were justified, if it were found that, for example, he acted in self defense.

In contrast, regarding overall responsibility, "[W]e speak of persons being responsible in the sense that they are the sort of people who can be counted on to make 'responsible' decisions."[94] For example, an individual who is charged with the duty of managing property, or making monthly payments, or drawing up a contract or will, may be said to be responsible in this overall sense.

This notion of autonomy was described more elaborately and in

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92. For an overview of how courts have struggled with defining privacy and autonomy, and for a summary of other views of autonomy definitions, see L. Tribe, American Constitutional Law §§ 15-1 to -2, at 886-990 (1978); Anastaplo, *The Public Interest in Privacy: On Becoming and Being Human*, 26 DePaul L. Rev. 767 (1977); Gavison, *Privacy and the Limits of Law*, 89 Yale L.J. 421, 449-50 (1980).

93. Moore, *Legal Conceptions of Mental Illness*, in Mental Illness: Law and Public Policy 25 (B. Brody & H. Englehardt, Jr., eds. 1980) (emphasis in original).

94. *Id.*

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94. *Id.*

somewhat different terms by Professor Nathaniel Branden.[95] Branden explores the impact of behavior control on autonomy through its effect on individual decisionmaking and democracy.[96] He suggests that the democratic system itself is founded on the notion that people are capable of governing themselves. Underlying this is the assumption that "[m]an has the ability to be explicitly aware of his own mental activities, to question their validity, to judge them critically, to alter or correct them . . . . He has the power to regulate the action of his own consciousness."[97] This ability to control one's actions arises only when an individual *chooses* to focus his mind—to think.[98] Hence, with each new problem or issue with which an individual is presented, he must make a choice to think.[99]

In this view, then, the essence of psychological freedom is the choice of whether to activate or suspend this conscious conceptualization.[100] An individual's awareness of his own mental activity and his capacity to think about that activity make possible all other values.[101] Thus, when one is *aware* of his mental processes, an external impetus to behave in a certain manner will not mandate that exact behavior.

> [The] social environment can provide man with incentives for good or for evil, but—to repeat—an incentive is not a necessitating cause. . . .
>
> A man's character, the degree of his rationality, independence, honesty, is determined, not by the things he perceives, but by the thinking he does or fails to do about them.
>
> . . . .
>
> Of any value offered to him as the right, and any assertion offered to him as the true, a man is free to ask: *Why?* That "Why?" is the threshold that the beliefs of others cannot cross without his consent.[102]

These principles can be used as guidelines to evaluate the impact of subliminal communication technology on the values associated with individual autonomy. To illuminate this process, it is useful to compare subliminal communication with another behavior modification

95. *See* Branden, *supra* note 6.
96. *Id.*
97. *Id.* at 265.
98. *Id.* at 269.
99. *Id.* at 270-71.
100. *Id.* at 271.
101. *Id.* at 272.
102. *Id.* at 276, 278.

technique, post-hypnotic suggestion.[103] It might be argued that there is no basis for treating subliminal messages any differently than suggestions given to a person under hypnosis, since in both cases the recipient is equally vulnerable to influence by the message provider. However, two elements of hypnotic suggestion, awareness and control, are lacking in subliminal communication. Although hypnosis may render an individual more susceptible to suggestion, the fact that the hypnotic subject is aware of having been in the hypnotic state is critical. This awareness places the subject on notice, at least to the extent that he may more scrupulously evaluate his subsequent attitudes, thoughts, and actions. With subliminal persuasion, however, the receiver is not aware of having been influenced, nor has he consented to any such manipulation. Unaware that his thoughts or impulses are not his own, he has no reason for careful self-evaluation. It is this unauthorized interference that is dangerous; it may well bypass the important self-censoring one normally engages in. As the earlier discussion on individual autonomy reveals,[104] the ability to evaluate critically one's mental activities and to regulate the actions of the mind is central to individual autonomy. To the extent that hypnotism does not so extensively invade self-censoring thought processes, it does not pose as serious a threat as subliminal communication devices.[105]

A review of the possible applications of subliminal technology further exposes the extent of its intrusion into personal autonomy. Consider the following two hypothetical uses of subliminal communication

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103. For a good working definition of hypnosis, see THE AMERICAN HERITAGE DICTIONARY OF THE ENGLISH LANGUAGE 648 (W. Morris ed. 1969), which defines hypnosis as "[a]n artifically induced sleeplike condition in which an individual is extremely responsive to suggestions made by the hypnotist."

104. *See* notes 92-102 and accompanying text *supra*.

105. For similar reasons, "subliminal art," the use of sexually arousing hidden messages in advertising displays to increase consumer purchases, may prove less threatening than the mechanically induced visual and audio subliminal devices. *See* note 31 *supra*. An individual may be easily influenced by the subtle persuasions of subliminal art. As in hypnotism, however, the viewer is at least aware that he is being influenced. Although he may not understand why this particular advertising medium makes the product so attractive, he knows something is attempting to influence him in a particular direction. This awareness is likely to encourage a more scrupulous evaluation of his subsequent attitudes, thoughts, and actions relating to the product.

In the case of mechanically induced subliminal messages, however, conscious self-censoring is completely bypassed, since the recipient lacks any awareness that an advertising message or behavior stimulus has been directed at him. For this reason, the focus of this Note is limited to discussion of the mechanically induced subliminal devices described earlier. *See* notes 24-29 and accompanying text *supra*. This limited focus does not imply that the subliminal art used in so much advertising presents no danger. Indeed, the two forms of subliminal persuasion may not always be easily distinguishable. To the extent that there is overlap, this Note's analysis should be equally applicable to subliminal art.

techniques: (1) a subliminal message by a tobacco company that effectively induces a health-conscious individual, *who never before had the inclination,* to buy cigarettes and start smoking; and (2) a subliminal message on an advertising display that effectively induces a hungry shopper, *who is easily tempted by sweets,* to buy a package of candy bars.[106] If one of these uses of subliminal communication seems more offensive than the other, the difference may ultimately turn on the actual degree to which subliminal persuasion can alter behavior. Nonetheless, it will be argued that both cases involve threats to individual autonomy, even though one is more extreme.

1. *Inducing Behavioral Change Where There is No Predisposition for Change*

Clearly the most extreme case, as illustrated in hypothetical (1), would be a technique that could induce an individual to act in a manner completely contrary to his normal predispositions. In contrast, the shopper in hypothetical (2) might have purchased, or at least considered purchasing, the candy even if there had been no message; the subliminal served as a reminder or catalyst. In order to analyze the most extreme case of effectiveness, it will be assumed that subliminal devices can cause an individual to act as he would not otherwise have acted, even though there is little data to support such an assumption.[107] Intuitively, there seems to be something very wrong with permitting unchecked use of a device with such an effect. The apparent loss of individual control or autonomy makes such a device seriously objectionable.

This may be explained in terms of an absence of both retrospective and overall responsibility.[108] If the technique induces an individual to make a response that is contrary to what he would have done had there been no suggestion, and if this response is contrary to all of his normal predispositions, the individual is not responsible in either the retrospective or the overall sense. If subliminal suggestion can affect behavior to this extent, it would be reasonable to say that some external agent

106. Both these hypothetical examples involve the use of subliminal communication for commercial purposes, but there are many analogous examples in noncommercial contexts that are equally applicable for purposes of the present discussion. *See* notes 36-53 and accompanying text *supra*. An analysis of the constitutionality of government regulation of subliminal technology points out different treatment by the courts of commercial and noncommerical speech. *See* notes 299-304 and accompanying text *infra*. This important distinction is not critical to the present analysis of the ethical issues posed by subliminals, however.

107. *See* notes 74-85 and accompanying text *supra*.

108. *See* notes 93-94 and accompanying text *supra*.

caused the receiver to act in a manner over which he had no control. Although the individual performed the physical motions of buying the cigarettes, intent and voluntariness seem to be missing. Thus, there is no responsibility in the retrospective sense. Further, there is no responsibility in the overall sense. The normally health-conscious individual who chooses to take up a life-endangering habit when "tempted" only a few times by subliminal advertising techniques can hardly be said to be acting "responsibly." To the extent that his prior considerations and reasoning are ignored, and to the extent that he does whatever the subliminal message suggests, he can no longer be counted on to behave in a way that one would consider responsible.

Therefore, in the most extreme case, where subliminal persuasion can induce any kind of behavior, the message receiver essentially becomes an instrument of the programmer of the device. Such potential for control evokes images of a Skinnerian society, where the power of scientific and technological control is in the hands of professional "administrators," who engineer the survival of the culture.[109] The goal of the behavior control techniques employed in such a situation would be to replace personal idiosyncracies with social altruism.[110] A society with a controlled populace is the antithesis of a system founded on the belief that people are capable of self-government.[111] Although it is not clear whether present subliminal communication technology could effect the radical changes described in hypothetical (1), an analysis of the extreme case indentifies the aspects of autonomy that are potentially at stake.

2. *Subliminal Messages That Reinforce and Encourage Predisposed Behaviors*

Consider hypothetical (2),[112] in which subliminal persuasion merely causes an individual to do something more often than he normally would, or tempts him to do something that he normally avoids doing

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109. *See* Heldman, *Social Psychology Versus the First Amendment Freedoms, Due Process Liberty, and Limited Government*, 4 CUMB.-SAM. L. REV. 1, 12-18 (1973-74). Heldman argues that pluralism in government, education, and the media is the best protection from this kind of behavior control. *Id.* at 14. Further, Heldman argues for the development of an articulated constitutional right that specifically protects an individual's right to be free from mind control, and from state action attempting to establish *any* doctrine or ideology. *Id.* at 18. In this context, see notes 131-34 and accompanying text *infra*, discussing Professor Shapiro's outline of the parameters of a right to freedom of "mentation." *See also* P. LONDON, BEHAVIOR CONTROL 199 (1969).

110. *Id.*

111. *Id.*

112. *See* text accompanying note 106 *supra*.

through self-control.[113] In this case, the elements of responsibility in the retrospective and overall sense are not as clearly lacking as in the previous hypothetical. Nonetheless, even if the individual sometimes acts in this particular manner without the subliminal suggestion, subliminal devices still pose a substantial threat. Individual choice and control, which are core aspects of autonomy, are disturbingly diminished even by this sort of subliminal persuasion.

When beliefs of others influence an individual's behavior without his being aware of the underlying mental activity, his psychological freedom is jeopardized, even if the subliminal communication cannot induce him to act contrary to his own predispositions.[114] The concern in the case of hypothetical (2) is that the technique is capable of introducing biased information[115] into the mind of an individual, "in the form of 'facts' or 'judgments,' that [will] later be thought of as the person's own beliefs or knowledge."[116] If subliminal techniques can influence an individual's views or behavior, his normal thought processes and censoring systems are bypassed. Thus, the messages are not so much an incentive to behave in a certain way as they are a cause of that behavior. When there is no awareness and the accompanying opportunity to think, there is no opportunity to question and judge the values implicit in the message.

Even if subliminal suggestion is only capable of slanting opinion or providing that last needed push, as opposed to inducing uncharacteristic behavior, the democratic process may still be endangered.[117] Alan Westin has addressed the problem of the impact of subliminal persuasion techniques on the present democratic political system. He contends that the system of representative government is dependent upon voters knowing and judging the issues of public policy put forward in public debate by both government and private organizations.[118]

> The threat of subliminal suggestion to the democratic process in the United States [is] that a public which [is] not consciously aware of the facts and arguments projected into millions of minds could not continue to exercise its crucial function of judgment and criticism. The

113. Present data support the conclusion that subliminal communication technology is advanced enough to cause this kind of response. *See* notes 74-85 and accompanying text *supra*.

114. *See* notes 95-102 and accompanying text *supra*.

115. A. WESTIN, *supra* note 7, at 296.

116. *Id.*

117. *Id.* at 296-97.

118. *Id.* at 296.

> mechanisms of democracy themselves [are] thus threatened by subliminal programs in the areas of lobbying, party campaigning, and governmental promotion.[119]

Hence, to the extent that subliminal communication is capable of reducing the thinking and judgment capacities of people, political and psychological freedom, as aspects of individual autonomy, are threatened.

B. Individual Privacy Concerns

A second set of values jeopardized by subliminal devices is centered around the notion of individual privacy. Although there is not yet any one satisfactory definition of privacy,[120] the aspect of privacy that best characterizes the concern in the present context is the right of personhood.[121] Personhood arguably involves the sanctity accorded human mental processes and personalities regardless of how healthy or abnormal these processes may appear to be. Personhood also involves the high degree of respect and protection accorded to the ideational content of the mind (the subject matter of a person's thoughts), regardless of the moral values that might be ascribed to that content. The relation of subliminal communication technology to both thought processes and thought content is the concern of the present section.

1. *Protection of Mental Processes as an Aspect of Privacy*

Unlike many other external stimuli that attempt to influence, mold, or direct an individual's behavior, subliminal technology involves a unique invasion of the right of personhood. Through subliminal communication, outsiders can "enter" an individual's mind and manipulate its processes. The individual is unaware of the intrusion of these external stimuli, which have affected, and perhaps changed, his thinking and behavior. This intrusion on the "inviolate personality,"[122] is of concern because of the value traditionally attached to the privacy of an individual's mental processes, and the worth of every individual personality. Western society has traditionally viewed the right of personhood as an aspect of individual privacy that deserves special protection.

The right of personhood, as an aspect of the right of privacy, was

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119. *Id.* at 297.

120. *See* notes 241-42 *infra*, for a more detailed discussion of the evolving notion of privacy and related definitional problems.

121. For a general discussion of the right of personhood in other contexts, see L. Tribe, *supra* note 92, § 15, at 886-990.

122. A. Westin, *supra* note 7, at 346.

highlighted several years ago with the advent of electronic surveillance and eavesdropping devices. The outraged response of the public[123] centered on many of the aspects of privacy articulated above:

> [T]he wrong in the intrusion cases is not the intentional infliction of mental distress but rather a blow to human dignity, an assault on human personality. Eavesdropping and wiretapping, unwanted entry into another's home, may be the occasion and cause of distress and embarrassment but that is not what makes these acts of intrusion wrongful. They are wrongful because they are demeaning of individuality, and they are such whether or not they cause emotional trauma.[124]

Individual mental processes have also found legal protection in an analogous area of the law[125] that involves state attempts to coerce mental conformity by requiring involuntarily incarcerated persons to undergo behavioral, electrochemical, or surgical "therapy."[126] These procedures are often extremely painful and may radically alter an individual's behavior. For example, one aversive treatment program carried out on prison inmates used a drug to suppress hazardous behavior such as rape and assault. The drug was used to associate those behaviors with a negative experience—when injected intramuscularly, it induced total muscular paralysis and temporary respiratory arrest.[127] Generally, courts have prohibited these involuntary behavior modification techniques, extending protection to the individual's right "to be

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123. *See generally id.* at 338-64 (tracing the history of the use of electronic surveillance and the ensuing popular and legal responses).

124. Bloustein, *Privacy as an Aspect of Human Dignity: An Answer to Dean Prosser*, 39 N.Y.U. L. REV. 962, 974 (1964).

125. The discussion in text relies on principles and concepts that were developed or explained in case law. The present section employs these legal examples only to the extent they establish the privacy interest at stake in the use of subliminal technology. A thorough discussion of existing privacy law is reserved for a later section of this Note. *See* notes 178-261 and accompanying text *infra*.

126. *See* L. TRIBE, *supra* note 92, § 15-8, at 910-13. The techniques that have been most frequently employed are listed and described by Shapiro, *supra* note 7, at 240-49. They include psychotropic (mind-altering) drugs, electrical stimulation of the brain by the implantation of electrodes, psychosurgery (surgery on the brain to alter or control behavior), and drugs which condition behavior. *Id.* at 240-42.

These techniques have been used to control criminal behavior and other behavior considered deviant (*e.g.*, aggressive urges), as well as certain mental illnesses. *Id.* at 243-44. The techniques are similar to subliminal techniques in that they interfere with an individual's mental processes, and often alter the personality and behavior of the patient, either against his will or without his knowledge.

127. *Id.* at 245-46.

free from interference with his mental processes."[128] The courts have emphasized the profound and irreversible effects of the techniques used, as well as the fact that involuntary confinement precluded informed consent to the procedures.[129]

Although the procedures used in these cases often resulted in extreme interference with normal activity and great physical pain,[130] the more critical question is whether the intrusion on the prisoner's mental processes is, by itself, violative of his personhood. Professor Michael Shapiro addressed this question by identifying the values at stake when such procedures are involuntarily imposed upon prisoners.[131] Shapiro's analysis emphasizes the same concept of the sanctity of human mental processes that is at issue with the use of subliminal devices.

Professor Shapiro suggests that there is a first amendment right to freedom of "mentation."[132] Not all attempts at changing behavior constitute mind control, however, and to make out a threshold first amendment claim, the individual must establish a minimal level of intrusiveness. Shapiro provides six criteria for measuring intrusiveness,[133] which "may be roughly captured in part by some notion of

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128. *See* L.TRIBE, *supra* note 92, § 15-8, at 912 (citing Kaimowitz v. Department of Mental Health, Civ. No. 73-19434-AW (Mich. Cir. Ct., Wayne Cty., July 10, 1973)).

129. *Id.* § 15-8, at 913.

130. *Id.* § 15-8, at 912-13.

131. *See generally* Shapiro, *supra* note 7.

132. *Id.* at 253-54. "*Mentation* refers to cognition, understanding, perception, emotion—loosely, any mental functioning or activity." *Id.* at 246 n.14. Shapiro's discussion is in the context of various surgical and medical techniques used to treat mental illness. Arguably, the concerns Shapiro voices are similar to those voiced for other forms of behavior control. He even raises the question of the relationship of his model to the unconscious. *Id.* at 261 n.68. His thesis rests on three propositions:

> The first is a moral thesis: it is prima facie (presumptively) immoral for the state to effect substantial changes in a person's mentation against his will. That is, mind control is prima facie wrong and must be justified on moral grounds adequate to overcome the presumption of immorality . . . . The second proposition is that this moral presumption against enforced substitution of judgment is embodied in and informs certain constitutional provisions.
>
> The third proposition . . . is that the Constitution, through both its protection of communication under the first amendment and its protection of privacy, protects freedom of mentation as a fundamental right which cannot be abridged except by demonstrating that the abridgement is necessary to further a compelling state interest.

Id. at 253-54 (footnotes omitted).

133. *Id.* at 262-67. The criteria of intrusiveness are:

> (i) the extent to which the effects of the therapy upon mentation are reversible; (ii) the extent to which the resulting psychic state is "foreign," "abnormal" or "unnatural" for the person in question, rather than simply a restoration of his prior psychic state (this is closely related to the "magnitude" or "intensity" of the change); (iii) the rapidity with which the effects occur; (iv) the scope of the change in the total "ecology" of the mind's functions; (v) the extent to which one can resist *acting* in ways impelled by the psychic effects of the therapy; and (vi) the duration of the change.

voluntariness or self-help in altering thought and behavior patterns . . . . Something was done *for* the person with his help, and not *to* him, or to his mind or personality."[134]

These criteria address themselves to the same aspects of privacy and personhood that are at stake in the case of subliminal communication techniques. To the extent that a given psychic state is foreign or unnatural to a person, and that the person has little ability to control the actions compelled by the technique, the mental processes have been invaded and intruded upon in the most basic way. Such an affront to the inviolate personality of an individual is a true infringement of personal privacy.

When a prisoner is coerced into undergoing procedures that "produce results without regard to the individual's freely chosen preferences," certain legal protections will adhere.[135] The outcome is less predictable when techniques are used that are painless and may produce significant behavior improvement,[136] as is the case with subliminal communication. As the Shapiro analysis of the prisoner cases suggests, however, these principles that dictate legal protection of the mental processes of the human mind are arguably applicable as well to subliminal communication cases, regardless of whether the technique induces "good" or "bad" changes.

Is subliminal suggestion any more offensive than the constant bombardment by commercial advertisers through billboards, radio, and television? There may be a distinction based on the nature of the impact on the individual's mental processes. The recipient is consciously aware of the presence of advertisements, even if he is unaware that they may employ subtle techniques for influencing him. The traditional advertisement does not depend upon reaching an unknowing mind, at the subconscious level, to be effective. In contrast, subliminal communication techniques capitalize on the recipient's vulnerability by reaching his subconscious mind.[137] Indeed, the effectiveness of the subliminal technique itself depends upon reaching a recipient who has unwittingly exposed himself to such manipulation.[138]

Id. at 262 (footnotes omitted).

134. *Id.* at 267 (footnotes omitted) (emphasis in original).

135. L. TRIBE, *supra* note 92, § 15-8, at 912.

136. *Id.*

137. The three necessary criteria of subliminal perception establish this point. *See* text accompanying note 31 *supra*.

138. *Id.* One criterion of subliminal perception is that the subject reports that he neither saw nor heard anything of the stimulus.

It has been argued that the use of audio subliminal devices to control shoplifting is no different from the common practice of using two-way mirrors or plainclothes detectives in department stores.[139] There is a distinction, however, for at no time during such surveillance are the mental activities or thought processes of the potential shoplifter disturbed. Certainly such surveillance invades the privacy of the individual's externally visible behavior. With subliminal communication, however, the intrusion can transcend physical boundaries and invade the privacy of the mind. This affront to the right of the inviolate personality is of concern because of the high value traditionally and justifiably placed on the privacy of one's thoughts and mental processes.

2. *Ideational Content as an Aspect of Privacy*

Another aspect of the right to privacy is reflected in the legal protection of an individual's thoughts or ideas. Historically, the content of an individual's mind has been safeguarded, regardless of whether it is morally reprehensible or potentially harmful. A classic exposition of the values at stake in this context was provided in *Stanley v. Georgia,*[140] in which the Supreme Court struck down a conviction for possession of obscene material. The Court held that mere private possession is not a crime, and that it was "wholly inconsistent with the philosophy of the First Amendment"[141] for government to assume "the right to control the moral content of a person's thoughts" or "the power to control men's minds."[142] Thus, any attempt by government to "restrict the thinkable by shaping or screening sensory inputs—the sources of consciousness"[143]—was prohibited.

Attempts to control the moral content of a person's thoughts are evident in all subliminal communication techniques, regardless of the nature of the particular message. It has been argued that certain uses of subliminal suggestion could have a positive impact on some individuals.[144] One might thus attempt to differentiate a subliminal message that effectively persuaded a heavy cigarette smoker to conquer the habit from the subliminal message that encourages unnecessary consumption in a grocery store. However, as is implicit in *Stanley,* the

139. Athens, *supra* note 2, at 40. This analogy was made by the inventor of the device, Dr. Becker. After drawing the analogy, he said: "What we are doing is designed to subvert something that is criminal, and let's face it, telling the whole truth isn't always the best policy." *Id.*

140. 394 U.S. 557 (1969).

141. *Id.* at 566.

142. *Id.* at 565.

143. L. TRIBE, *supra* note 92, § 15-7, at 906.

144. *Secret Voices, supra* note 4, at 71.

danger of this approach is its failure to recognize that the content of an individual's mind, even if it is unhealthy, dangerous, or immoral, is an aspect of his personhood that is inherently inviolable.

These privacy values have been identified in several other contexts. In *West Virginia State Board of Education v. Barnette,*[145] the Supreme Court held that public school students could not be compelled to salute the flag and recite the pledge of allegiance, saying that to enforce the values of the Bill of Rights "is not to choose weak government over strong . . . [but] is only to adhere as a means of strength to individual freedom of mind in preference to officially disciplined uniformity for which history indicates a disappointing and disastrous end."[146] Similarly, in *Wooley v. Maynard,*[147] the Court held that the state could not prevent an individual from covering the state motto on his car license plates because he found it repugnant to his personal beliefs. The Court stated that requiring "an individual, as part of his daily life . . . to be an instrument for fostering public adherence to an ideological point of view he finds unacceptable"[148] would invade a constitutionally protected " 'sphere of intellect and spirit.' "[149] As one commentator has noted, the Court's opinion stresses that "forbidden to the state is the power to make an individual a vehicle for *other* people's views, whether or not the state is seeking to reshape the individual's *own* views."[150]

One eloquent description of privacy which gives content to this aspect of personhood stated: "[P]rivacy is no more, and certainly no less, than the freedom of the individual to pick and choose for himself the time and circumstances under which, and most importantly, the extent to which, his attitudes, beliefs, behavior and opinions are to be shared with or withheld from others."[151] The proliferation of subliminal communication technology mandates that protection also be afforded to an individual's freedom to choose the time, circumstance, and extent to which his attitudes, beliefs, behavior, and opinions are to be influenced and shaped by another.

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145. 319 U.S. 624 (1943).

146. *Id.* at 637.

147. 430 U.S. 705 (1977).

148. *Id.* at 716.

149. *Id.* (quoting West Va. State Bd. of Educ. v. Barnette, 319 U.S. at 642).

150. L. TRIBE, *supra* note 92, § 15-5, at 901 n.15 (emphasis added).

151. Schwitzgebel, *supra* note 89, at 366.

C. The Subliminal Balance: Social Gain Against Individual Loss

It might be argued that the negative consequences flowing from the infringement of individual autonomy and privacy rights are outweighed by the social benefits accruing from the use of subliminal technology. This argument suggests that only subliminal techniques that impart messages deemed to be bad or unhealthy for society should be prohibited. This section demonstrates that even such limited use of subliminal technology poses problems that merit serious consideration.

1. *The Content of a Subliminal Message That Benefits Society*

The position that the content of a message is not a valid basis for distinguishing between "good" and "bad" uses of subliminal communication[152] is based on the idea of the integrity of the human personality, regardless of how deviant or bad. Personal autonomy considerations also suggest the inappropriateness of distinctions based on content.. Arguably, even if only socially beneficial messages are communicated, the threat to individual autonomy is not necessarily offset by the potential benefits to society.

Suppose that the law permitted only subliminal messages capable of eliminating an individual's inclinations, drives, or habits deemed harmful to the individual or to society. This could conceivably eliminate a great many societal problems.[153] However, it would also undermine much of the protection accorded individual choice and control.

Western society is founded on the belief that individuals, as responsible agents, are capable of self-government,[154] and are accountable for their actions.[155] An individual is capable of acting in accordance with the choices of his own consciousness, which is under his control.[156] Because a person is free to think and act as he wills,[157] there is a tension between society's demand that its members act in a socially responsible manner and an individual's desire to do as he

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152. *See* text accompanying notes 140-51 *supra*.

153. *See* notes 36-53 and accompanying text *supra*.

154. Heldman, *supra* note 109, at 13.

155. Branden, *supra* note 6, at 265.

156. R. London, Behavior Control 205-06 (1969).

157. All of the great legal codes from the Magna Charta [sic] through the Bill of Rights enlarge the measure of free speech and action to which we are entitled. The Nuremberg code, the most recent milestone in the discourse on freedom, guarantees freedom of the will as well, by forbidding the coercion of consent.

Id. at 205.

pleases.[158] When individual autonomy is protected, social deviance is always possible.[159] Thus, a moral dilemma arises concerning the extent to which the political and legal system can circumscribe an individual's right to act as he chooses.[160] As the subliminal "honesty reinforcement and theft deterrent system" has demonstrated, effective behavior control might reduce social deviance.[161] However, this gain is achieved by manipulating human behavior and engineering individual consent:[162]

> We have always assumed that social deviance and social responsibility were the chosen behavior styles of individuals in control of themselves, and in control at the deepest level of awareness—that of their own desires. It is at that level that behavior technology challenges the utility of these concepts by making it possible to populate utopia with automata, who are free at every level of behavior *except* desire. Behavior technology can cope with social deviance in the happiest possible way—by eliminating personal license and still leaving the individual with the feeling that he is free to satisfy his needs. But the very power to guarantee that people will act responsibly and feel free completely unhinges the conventional political morality on which modern democracy is based.[163]

A subliminal device may decrease the incidence of some forms of social deviance, such as the desire to steal, thereby benefiting society as a whole. However, society, by allowing such use, will have deprived its members of the freedom to choose their own life styles and behavior patterns. It is not certain that society truly benefits, since the obvious benefit of decreasing social deviance is, at least to some extent, offset by the invasions of autonomy and privacy. On balance, individuals and society as a whole may both lose.

2. *Who Will Decide What is Best for Society?*

Should society disregard the principles favoring protection of *all* ideational content and decide to allow only subliminal communications with messages deemed beneficial to society, a second concern would have to be faced: who is to decide what is "good" for society. This problem, when considered with the invasion of individual autonomy, arguably outweighs the acknowledged benefit to society of decreasing social deviance.

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158. *Id.* at 206-07.
159. *Id.* at 207.
160. *Id.* at 204-05.
161. *See* text accompanying notes 46-50 *supra*.
162. R. LONDON, *supra* note 156, at 205.
163. *Id.* at 207 (emphasis in original).

It is clear that, if the use of subliminal communications or any behavior modification technology is limited to situations where it advances the "public good," power must be vested in someone to determine which communications will advance the public good. With the allocation of such power comes the risk that it will be abused.

> The Constitution was made to guard the people against the dangers of good intentions. There are men of all ages who mean to govern. They promise to be good masters, but they mean to be masters. The Constitution was written primarily to keep the Government from being masters of the American people.[164]

Those who desire power for its own sake may be inclined to abuse the freedom of others.[165]

The most serious danger to society is the concentration of control over people's thoughts and ideas in the hands of a powerful minority.[166] The point is best illuminated by comparing subliminal communication with language in general.[167] Language is a powerful tool for controlling people.[168] It is not a threat to society, however, because it is universally available. "The only cases where speech can be used to exploit those who rely on it are cases where speech is not free, where certain avenues of communication are available only to those who hold one particular view."[169] Subliminal communication, similarly, is not free, and if it is available only to those whose views are deemed beneficial to society, there is a problem of concentration of control. A possible solution would be to make subliminal communications available to everyone. Such "universal availability"[170] could be achieved through increased access to media,[171] education about the potentialities and limitations of subliminal communication,[172] and awareness.[173] To the extent that some controlling group alone decides what the content of subliminal messages will be, however, there can be no universal availability.

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164. Remarks of Senator Sam Ervin, quoted in TIME, Apr. 16, 1973, at 11.

165. *See* P. LONDON, *supra* note 156, at 200, 205.

166. R. SCHWITZGEBEL & SCHWITZGEBEL, *supra* note 89, at 265.

167. *Id.* Schwitzgebel and Schwitzgebel applied the analysis to follow in comparing language to other forms of electronic behavior.

168. *Id.* at 264.

169. *Id.*

170. *Id.* at 265.

171. Heldman, *supra* note 109, at 14.

172. *See generally* A. WESTIN, *supra* note 7, at 265 (discussing effectiveness of subliminal communication devices).

173. P. LONDON, *supra* note 156, at 218.

Probably no ideal solution exists at this time. However, given the fact that individual autonomy and privacy are such fundamental values, it is necessary to consider remedies that currently exist to protect these values.

III. EXISTING REMEDIES FOR SUBLIMINAL COMMUNICATION HARMS

Although concern with the dangers of subliminal communication initiated a flurry of state and federal legislative hearings on the subject,[174] not a single law has resulted from these hearings.[175] Currently, the television and radio industries prohibit the airing of subliminal messages,[176] but other uses of subliminal communication remain unregulated.

This section demonstrates, however, that the individual's rights of privacy and autonomy have been historically recognized and protected by the common law. It examines the history of tort law in this area[177] and applies existing law in the context of utilizing a private action to remedy harms caused by the use of subliminal communication. Further analysis reveals that such a remedy is inadequate in terms of practical application and protection of privacy and autonomy values,[178] necessitating the development of an effective remedy, which will be done in the following section.[179]

A. THE NATURE OF TORT PRIVACY LAW AND THE INTRUSION CASES

Traditionally, various aspects of privacy have been protected by the laws of defamation, trespass, breach of confidence, and nuisance.[180] Until recently, the law did not specifically protect privacy;[181] harms to privacy itself without an accompanying harm such as loss of reputation

174 *See* notes 338-47 and accompanying text *infra*.

175. *Id.*

176. *See* notes 349-51 and accompanying text *infra*.

177. *See* notes 180-98 and accompanying text *infra*.

178. *See* notes 244-66 and accompanying text *infra*.

179. *See* notes 369-375 and accompanying text *infra*.

180 A. WESTIN, *supra* note 7, at 333-37.

181. Kalven, *Privacy in Tort Law—Were Warren and Brandeis Wrong?*, 31 L. & CONTEMP. PROB. 326, 327 (1966). *But see* A. WESTIN, *supra* note 7, at 337. Prior to the Civil War, an effective set of rules protected individual and group privacy from physical surveillance and compulsory disclosure. The law banned practices such as federal searches of letters, compulsory testimony by those charged with crimes, and religious test oaths for public officials. Later, laws forbade persons to cut or tap telegraph lines or intercept telegraph messages. *Id.* In addition, some case law seemed headed in the direction of protecting privacy. *E.g.*, DeMay v. Roberts, 46

were considered insignificant.[182] The urbanization of America, however, ushered in new threats to privacy, as improved systems of transportation and communication spread information about others with increasing speed.[183] In addition, with the escalating density of population in metropolitan areas, private affairs and conversations were more easily and involuntarily exposed.[184] The development of wiretapping and bugging technology made nonphysical violations of privacy a reality. Consequently, mere physical protection from noise or trespass was insufficient; interests in being left alone needed protection as well.[185]

Initially, the protection of privacy as a distinct interest arose from the infringements that occurred when others gained access to information intended to remain personal. Aggresssive and exploitative journalism emerged in the late nineteenth century, and rapidly developing print technology greatly increased its ability to spread embarrassing personal information. Defamation actions were available to persons harmed by false publications, but harm resulting from gossip items was irremediable.[186] In 1890, the newspapers of Boston covered the parties of a young socialite in personal and embarrassing detail. Her husband, Samuel D. Warren, and his law partner, Louis D. Brandeis, were appalled at the excesses of the press and wrote an article addressing the need for privacy protection in modern society.[187] Their early advocacy of judicial recognition of a distinct interest in privacy laid the foundation for this area of tort law, and it continues to influence courts and scholars today.[188]

Warren and Brandeis began their article with the observation that the scope and nature of the law's traditional protection of person and

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Mich. 160, 9 N.W. 146 (1881) (intrusion upon childbirth by nonphysician, a tort for which the law will provide a remedy).

182. "The mental distress that resulted from a loss of privacy seemed too ephemeral and unimportant an injury to warrant the law's attention." A. MILLER, THE ASSAULT ON PRIVACY 169 (1971).

183. Advances in print technology enabled information to be dispersed more quickly and to a much wider audience than had been possible before. Westin names three technological developments that increased the ability to know more about others: the telephone, microphone and dictograph recorder, and instantaneous photography. A. WESTIN, *supra* note 7, at 338.

184. Another reason for the modern concern with privacy might be derived from the changing political climate. With the "immense increase of state activity in all fields and by the growing acceptance of the idea of the supremacy of the community," individualism, human personality, and privacy are in danger. S. STROMHOLM, RIGHT OF PRIVACY AND RIGHTS OF THE PERSONALITY 18 (1967).

185. A. MILLER, *supra* note 182, at 170; A. WESTIN, *supra* note 7, at 339.

186. *See* note 237 *infra*.

187. Warren & Brandeis, *The Right to Privacy*, 4 HARV. L. REV. 193 (1890).

188. *See* W. PROSSER, HANDBOOK OF THE LAW OF TORTS 802 (4th ed. 1971).

property is not fixed, but has had to be redefined from time to time.[189] They traced the common law's growth from protection of tangible property interests to protection of intangible "property" interests of personality or privacy, emphasizing that the law continued to adapt to the changes in society.[190] The authors argued that this growth of the law's protection should extend to the harms springing from current developments in society, specifically, advancements in photography and printing. These technological changes were perceived as a threat that could "make good the prediction that 'what is whispered in the closet shall be proclaimed from the house-tops.' "[191] This threat to privacy mandated that an explicit commitment be made to protect privacy rights.

Warren and Brandeis contended that privacy should be "recognized as a right entitled to legal protection" notwithstanding variations in the nature of injuries resulting from disparate invasions of privacy.[192] The courts should be able to extend protection to privacy without the aid of legislation creating a new cause of action.[193] Actions based on privacy invasions could be processed by the judiciary in a fashion similar to related torts such as defamation.[194]

Unfortunately, Warren and Brandeis' cogent plea for remedies for harms to privacy did not thoroughly analyze the protectible privacy interest.[195] Warren and Brandeis did state that protection of an inviolate personality was the basis of the protection traditionally accorded to "thoughts, sentiments, and emotions" in the law of literary property.[196] Apart from references to an "inviolate personality," the nature of the

189. Warren & Brandeis, *supra* note 187, at 193.

190. *Id.* For instance, the tort of battery grew to that of assault. Then came a protection against nuisance. Later, reputation was protected by slander and libel law. *Id.* at 193-94.

191. *Id.* at 195. Warren and Brandeis implied that the desire for privacy increased because there was a change in people's awareness or sensitivity. "Solitude and privacy have become more essential to the individual" because of the "intensity and complexity of life." *Id.* at 196. More probably, the desire for privacy has not changed, but the threats to privacy have increased. Hence, the once easily secured level of privacy has been destroyed. Gavison, *supra* note 92, at 465.

192. Warren & Brandeis, *supra* note 187, at 205.

193. *Id.* at 195.

194. Gavison, *supra* note 92, at 464.

195. C. GREGORY, H. KALVEN & R. EPSTEIN, CASES AND MATERIALS ON TORTS 1135 (3d ed. 1977) ("One of the major problems with the Warren and Brandeis article is that it does not clearly identify the nature of the protected interest.").

196. Warren & Brandeis, *supra* note 187, at 205. Although the authors emphasized that harms to the inviolate personality arise from gossip or publication of photographs without the subject's consent, the courts have also extended relief in cases where publication did not occur. *See* notes 201-19 and accompanying text *infra*.

privacy interest being threatened by changes in society was not clarified. Nonetheless, the authors' visions of the law's ability and obligation to protect privacy were realized in the next century, as demonstrated by the hundreds of cases dealing with diverse privacy claims.[197] The cases categorized as intrusions upon a plaintiff's seclusion or solitude, or into his private affairs[198] are relevant to subliminal communication.

Three intrusion cases illustrate the malleability of privacy law and its tendency to redefine periodically the nature of the privacy right to be protected. These cases are useful to the victim of subliminal communication pursuing a private action for several reasons. First, the cases extend the parameters of what constitutes an invasion of privacy. In the era of Warren and Brandeis, publication was the main form of intrusion;[199] today, wiretapping and the observation of private files qualify as actionable invasions. The cases reveal a particular concern with unsuspected invasions stemming from modern technological advances such as bugging. Judicial recognition of the threats to privacy by modern technology could be advantageously employed by a plaintiff in a subliminal communication case.

Second, the liability inquiry in the three cases focuses upon the unreasonableness of the intrusion itself. By dispensing with the cumbersome analysis of the extent of the harm resulting from a particular infringement of privacy, recovery is based on grounds similar to those used for libel or slander per se.[200] Once an act unreasonably penetrates the sphere of personality protected by the law, harm need not be proven for damages to be recoverable. Since requiring a plaintiff to

197. *See* W. PROSSER, *supra* note 188, at 804.

198. In 1960, Dean Prosser reviewed all the privacy cases that had been decided and proposed a classification system. *See* Prosser, *Privacy*, 48 CALIF. L. REV. 383 (1960). He identified four categories of intrusions upon privacy: public disclosure of embarrassing private facts; publicity that places the plaintiff in a false light; appropriation of the plaintiff's name or likeness; and intrusion upon the plaintiff's seclusion or solitude, or into his private affairs. *Id.* at 389. Only the intrusion category comes close to those intrusions caused by subliminal communication. Public disclosure of private facts requires publication of facts or use of a photograph. *Id.* at 392-98. Subliminal communication does not disclose anything about the recipient of the message. The tort of false light possesses similarities to that of disclosure, the difference being mainly in the content of the publicity. *Id.* at 400. Appropriation usually involves publication as well. *Id.* at 401-07.

199. Perhaps most of the reported privacy cases involved publication or the use of a photograph because in those cases it was easy for the victim to know he had been harmed. Without publicity, it might be difficult to know that one's privacy has been intruded upon. *See* Comment, *The Emerging Tort of Intrusion*, 55 IOWA L. REV. 718, 718-19 (1970).

200. W. PROSSER, *supra* note 188, at 815.

prove the evanescent harms suffered as a result of subliminal communication could be burdensome, applying this standard would alleviate much of the difficulty involved in bringing such a suit.

Third, the courts have expanded the protection of personality interests similar to the privacy and autonomy interests at stake in subliminal communication. When the interests threatened by subliminal communication are linked to the protectible interests recognized in the three cases, the intrusion tort becomes an effective vehicle for obtaining redress.

1. Roach v. Harper

In the first of these cases, *Roach v. Harper,*[201] a landlord had installed a "bug" in the apartment of a female tenant so that he could overhear conversations. Although state law did not prohibit such eavesdropping, the court recognized the trend toward protecting the individual from unwarranted intrusions. The court stated that although the right to privacy is related to other interests protected by law, such as those protected by actions in libel, copyright infringement, and wrongful search and seizure, the "right to privacy is an individual right that should be held inviolate. To hold otherwise, under modern means of communicative hearing devices, photography, and other technological advancements, would effectively deny valuable rights and freedoms to the individual."[202] The court concluded that the plaintiff could maintain an action for the bugging that invaded her privacy right,[203] even though the conversations were not published.

The *Roach* court declined to apply the standards established in libel cases, and held that intrusion without publication is a harm requiring relief.[204] Since what other persons learned from the intrusion was irrelevant, the inference is that the harm occurred with the intrusion itself. Moreover, the degree of injury, or whether it existed at all, was ignored. The court concentrated on the unreasonableness of the intrusion, not on the mental distress suffered by the plaintiff as a result of the intrusion. In fact, once the intrusion was deemed unreasonable, the court saw no need to require that special damages be proved.[205]

The *Roach* court responded in the tradition of the common law, as

201. 143 W. Va. 869, 105 S.E.2d 564 (1958).
202. *Id.* at 876, 105 S.E.2d at 568.
203. *Id.* at 877, 105 S.E.2d at 568.
204. *Id.* at 874, 877, 105 S.E.2d at 566-67, 568.
205. *Id.* at 877, 105 S.E.2d at 568.

Warren and Brandeis advocated, by adapting to new threats to privacy and granting a remedy where none had previously existed. The opinion did not explain what precise privacy values it sought to protect, but it did make clear that the privacy tort differs from other related torts. The intrusion tort does not require proof of harm; an offensive intrusion is enough to warrant relief for the plaintiff.

2. Pearson v. Dodd

In *Pearson v. Dodd,*[206] a federal court of appeals tackled the problem of what constitutes an action for privacy intrusion. Two of Senator Dodd's staff members, not parties to the lawsuit, removed files from the Senator's office. They replaced the files after copying certain information from them. The defendants received and published the copied information, and Dodd sued. The court noted that the defendants had not stolen the files themselves, but had merely published articles containing information received from third parties; thus, the action could not proceed against the publishers under the theory of intrusion of privacy.[207] The content of the information received was irrelevant, since the tort of intrusion depends upon the intrusion itself, not the fruits of the invasion.[208] Hence, the court intimated that an action against the intruders based on invasion of privacy might be more successful.[209]

The court supported "the extension of the tort of invasion of privacy to instances of intrusion, whether by physical trespass or not, into spheres from which an ordinary man . . . could reasonably expect" the intruder to be excluded.[210] Without overtly discussing what interests were being violated, the *Pearson* court, like the *Roach* court, assumed that there were injuries from the intrusion. However, the harms from privacy invasion were distinct from injuries resulting from publication of the fruits of the intrusion. As in *Roach,* the court emphasized that the intrusion tort asks whether the intrusion was an unreasonable act that violated a protected sphere.

3. Nader v. General Motors Corporation

The third case sharpens the boundaries of the current scope of the right

206. 410 F.2d 701 (D.C. Cir. 1969).

207. *Id.* at 703-04.

208. "Injuries from intrusion and injuries from publication should be kept clearly separate. Where there is intrusion, the intruder should generally be liable whatever the content of what he learns." *Id.* at 705.

209. *Id.* at 704-05.

210. *Id.* at 704.

to be free from intrusion. In *Nader v. General Motors Corp.*,[211] the New York Court of Appeals considered the elements of the intrusion tort. Ralph Nader alleged that the defendant's agents had interviewed Nader's friends about personal matters, kept him under surveillance, sent women to entrap him into illicit relationships, made harassing telephone calls, tapped his telephone, and eavesdropped. The court first discussed the broadening scope of the invasion of privacy tort, citing *Pearson*.[212] The majority opinion, however, took a restrictive view of the tort, holding that only intrusions made for the purpose of gathering information of a confidential nature would be actionable. The court held that information that is open to public view or has been voluntarily revealed to others cannot be protected by the intrusion tort.[213] Under its restrictive view, the court found that the questioning of Nader's friends, and the phone calls and harassment by women, were not intrusions upon the plaintiff designed to gather confidential information.[214] The wiretapping and eavesdropping were found to be tortious invasions, however, because through them Nader had *unknowingly* exposed himself to others.[215]

The concurrence departed from the majority opinion in observing that the right to privacy does not always refer to confidential information.[216] The concurrence found it improper to look at the particular acts pleaded by Nader. Instead, the allegations should have been taken in the aggregate to determine whether an invasion of privacy had occurred.[217] Although the majority suggested that the acts found to be nonintrusive could be remedied if the plaintiff resorted to the tort of intentional infliction of emotional distress, the concurrence argued that the plaintiff should not be burdened with the task of using different tort theories to recover for a single harm resulting from disparate acts.[218]

The *Nader* majority and concurrence agreed that a person should be protected from violations of a certain private sphere, indicating that

211. 25 N.Y.2d 560, 255 N.E.2d 765, 307 N.Y.S.2d 647 (1970).
212. *Id.* at 565, 255 N.E.2d at 768, 307 N.Y.S.2d at 651.
213. *Id.* at 567, 255 N.E.2d at 769, 307 N.Y.S.2d at 653.
214. *Id.* at 568-69, 255 N.E.2d at 770, 307 N.Y.S.2d at 654.
215. *Id.* at 569-70, 255 N.E.2d at 770, 307 N.Y.S.2d at 655.
216. *Id.* at 573, 255 N.E.2d at 772, 307 N.Y.S.2d at 657 (concurring opinion).
217. *Id.* at 571-72, 255 N.E.2d at 772, 307 N.Y.S.2d at 656 (concurring opinion).
218. *Id.* at 572, 255 N.E.2d at 772, 307 N.Y.S.2d at 657 (concurring opinion).

The majority recognized that Nader might have a good cause of action based on intentional infliction of emotional distress, although there would be stringent pleading and proof requirements for that tort. If the acts complained of were not invasions of privacy as defined by the majority, however, the intrusion tort should not be used to avoid the burden of bringing an action for intentional infliction of emotional distress. *Id.* at 569, 255 N.E.2d at 770, 307 N.Y.S.2d at 654.

the interest protected by the privacy tort is different in either kind or degree from that protected by the tort of intentional infliction of emotional distress.[219] In addition, *Nader* openly recognized that harm is presumed to result once an intrusion into the private sphere is established.

B. Application of the Legal Principles to Subliminal Communication

The three intrusion cases and the historical background of the privacy tort indicate that the judiciary can adeptly handle novel invasions of privacy. On their face, the factual differences between the intrusion cases and subliminal communication appear to strain the analogy between the two. The intrusion cases involve gathering information from the plaintiff whereas subliminal communication invades the mind by sending information to the plaintiff. This factual difference appears less significant, however, when the basis for recovery in the intrusion cases is considered more closely.

As previously shown, the intrusion cases define an invasion of privacy as an unreasonable violation of a private sphere. Although in the conventional intrusion cases something is taken from that sphere, the taking itself is not the basis for liability. For example, publication of information taken from a plaintiff is not a required element of the cause of action.[220] The *Roach* and *Pearson* courts stressed that publication of the information taken is irrelevant.[221] Penetration of the private sphere in itself determines that an intrusion has taken place. If this penetration is unreasonable, a remedy will issue.

In discussing the scope of the private sphere, the *Pearson* court advocated protection of the sphere that an individual would expect to be kept free from interference.[222] In *Nader,* that sphere was more narrowly defined as one in which private facts were contained. If an individual exposed information to public view, he could not expect that information to be legally protected.[223] Moreover, the reasons for protecting the private sphere are implicitly recognized in the intrusion cases. The *Roach* court warned that technological advances might

219. *See* note 218 *supra*.

220. W. Prosser, *supra* note 188, at 814; Comment, *supra* note 199, at 719. *See also* 23 Okla. L. Rev. 223, 226 (1970).

221. *See* text accompanying notes 204, 207 *supra*.

222. 410 F.2d at 704.

223. 25 N.Y.2d at 567, 255 N.E.2d at 769, 307 N.Y.S.2d at 653.

deny "valuable rights and freedoms to the individual."[224] This language echoes the privacy and autonomy concerns evoked by the use of subliminal communication.

The most unreasonable form of intrusion is that which intrudes without the victim's knowledge. Thus, in *Nader*, recovery was granted because the wiretapping exposed that which was expected to remain private. The most offensive aspect of subliminal communication is that the intrusion is committed without the victim's knowledge.[225] Subliminal communication does not discriminate between public and private aspects of an individual's mind. Since the victim is unaware of the subliminal communication, and thus cannot have consented to the intrusion, every invasion by this means will be upon a private sphere.[226] In this respect, the degree of effectiveness of the subliminal communication[227] is irrelevant in determining whether an intrusion into a private sphere has occurred. Even a minimal penetration arguably crosses the invisible line separating the private mind from the public.[228]

Scholarly definitions of actionable intrusions and discussions of the purposes of the intrusion tort support remedying harms caused by subliminal communication. Dean Prosser has described the intrusion tort as "something in the nature of prying or intrusion," and "offensive or objectionable to a reasonable man."[229] Unreasonable intrusions include physical encroachments, such as trespass into a plaintiff's home[230] or his files.[231] Nonphysical intrusions, including wiretapping,[232] hidden microphones,[233] and persistent, unwanted telephone calls[234] have also been held actionable. The intrusion must invade the sphere that a reasonable person would expect to remain private.[235] Fi-

224. 143 W. Va. at 876, 105 S.E.2d at 568.

225. *See* notes 38-55 and accompanying text *supra*.

226. *See* notes 122-39 and accompanying text *supra*.

227. *See* text accompanying note 106 *supra*.

228. Uncertainty about the degree of effectiveness may, however, complicate proof of intrusion as a practical matter. *See* notes 244-49 and accompanying text *infra*.

229. Prosser, *supra* note 198, at 390-91.

230. *See, e.g.*, Dietemann v. Time, Inc., 449 F.2d 245 (9th Cir. 1971).

231. *See* Pearson v. Dodd, 410 F.2d 701.

232. *See, e.g.*, Fowler v. Southern Bell Tel. & Tel. Co., 343 F.2d 150 (5th Cir. 1965); Hamberger v. Eastman, 106 N.H. 107, 206 A.2d 239 (1964); LeCrone v. Ohio Bell Tel. Co., 120 Ohio App. 129, 201 N.E.2d 533 (1963).

233. *See, e.g.*, McDaniel v. Atlanta Coca-Cola Bottling Co., 60 Ga. App. 92, 2 S.E.2d 810 (1939); Elson v. Bowen, 83 Nev. 515, 436 P.2d 12 (1967); Roach v. Harper, 143 W. Va. 869, 105 S.E.2d 564.

234. *See, e.g.*, Harms v. Miami Daily News, Inc., 127 So.2d 715 (Fla. Dist. Ct. App. 1961).

235. Prosser, *supra* note 198, at 391. Thus, a plaintiff cannot expect privacy on a public street. *Id.*

nally, the law disregards trivial intrusions.[236]

According to Prosser, "The gist of the wrong is clearly the intentional infliction of mental distress . . . ."[237] Expressed differently, the "interest said to be jeopardized is an interest in mental tranquility."[238] Other commentators perceive the law as protecting an interest in personality,[239] the right to be let alone,[240] or human dignity.[241] Although the precise interests protected by the law are difficult to pinpoint,[242] the

236. *Id.* at 422.

237. *Id.* The tort of intentional infliction of emotional distress and the privacy tort should not be confused because of Prosser's use of the phrase "mental distress." These two torts differ both in pleading requirements and in the interests protected.

Intentional infliction of emotional distress requires more stringent pleading and proof than an action in privacy. Nader v. General Motors Corp., 25 N.Y.2d at 572, 255 N.E.2d at 772, 307 N.Y.S.2d at 657. The elements of this tort which must be pleaded and proved are the following: extreme and outrageous conduct, intentionally or recklessly causing severe emotional distress, with bodily harm resulting therefrom. W. PROSSER, *supra* note 188, at 56. Extreme and outrageous conduct is not an essential element of the tort of invasion of privacy, although most intrusion cases providing recovery have involved such conduct. Prosser, *supra* note 198, at 422. This is not surprising in view of the fact that the courts usually remedy intrusions considered highly offensive to a reasonable man.

The privacy tort is clearly distinguishable from other torts where privacy interests are protected, including intentional infliction of emotional distress. In fact, the privacy tort was intended to fill the gaps in protection of personality conferred by actions in trespass, nuisance, and the intentional infliction of emotional distress. Dworkin, *Privacy and the Law,* in PRIVACY 116, 117 (J. Young ed. 1978). The privacy tort initially developed in response to the gaps left by defamation actions which remedied only false publications. Warren and Brandeis observed that defamation actions only dealt with damage to reputation and did not extend protection to hurt feelings resulting from embarrassing but true publications. Warren & Brandeis, *supra* note 187, at 197. "[T]he only way to make truthful publications actionable was to develop new privacy doctrine." Gavison, *supra* note 92, at 466 n.142.

238. Gross, *The Concept of Privacy,* 42 N.Y.U. L. REV. 34, 46 (1967).

239. Comment, *supra* note 199, at 719.

240. 23 OKLA. L. REV. 223, 224 (1970).

241. Bloustein, *supra* note 124, at 974. In the first in-depth analysis of Prosser's categorization of privacy cases, Bloustein criticized Prosser for failing to identify the underlying interest protected by the four privacy torts. *Id.* at 963. Bloustein contended that invasions of privacy are "a blow to human dignity: an assault on human personality." *Id.* at 974. This broad human dignity interest easily obscures the narrower aspects of human dignity that might be at stake in privacy cases. Gavison, *supra* note 92, at 438; *see* Gross, *supra* note 238, at 53. See also W. PROSSER, *supra* note 188, at 816. Unfortunately, Bloustein's analysis of the privacy torts does not clarify the law's protection of privacy. He fails to explain when the law will afford a remedy and when human dignity is legally cognizable.

242. Precise privacy interests are difficult to extract from the cases because privacy is rarely protected in the absence of some other interest." Gavison, *supra* note 92, at 424. The courts have failed to isolate aspects of privacy, the contexts in which they are valued, and the societal goals that might militate against a claim. *Id.* at 461. Moreover, any analysis of the judiciary's treatment of privacy claims will be limited by the narrowness of the data base because few privacy cases have been reported. *Id.*

The confusion over what privacy interests are protected has been aggravated by the recent spate of constitutional law cases naming "privacy" as a constitutional value. Gross, *supra* note

privacy and autonomy interests infringed by subliminal communication arguably fall within the protectible sphere.[243] Therefore, the existing tort common law is available to a victim of subliminal communication.

C. Inadequacies of the Private Remedy

The three intrusion cases examined above and the privacy law theories of legal scholars manifest a willingness to remedy harms to privacy in various contexts. Yet the victim of subliminal communication is confronted with two problems when attempting to utilize the private action. The first set of difficulties is practical, arising when the victim knows he has been subjected to subliminal communication and wishes to sue the device user. He may have trouble proving that an intrusion has occurred or that he was harmed in a legally cognizable way. The second set of problems centers on the inadequacy of the private action as an appropriate remedy for the nature of the intrusion involved in subliminal communication.

1. *Practical Difficulties for the Plaintiff in a Subliminal Intrusion Case*

In the traditional intrusion cases, once the victim discovered the intrusion, proving that it had occurred was fairly simple. The plaintiff could point to a "bug" or to papers misplaced in a file as physical evidence of the tampering with private affairs. However, often the plaintiff must prove more than the mere existence of a bug. In *LeCrone v. Ohio Bell*

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238. at 35. Prosser's classification system and other conventional views of the privacy torts may become outmoded as a result of the constitutional cases. *See* Comment, *A Taxonomy of Privacy: Repose, Sanctuary, and Intimate Decision*, 64 CALIF. L. REV. 1447, 1450 (1976). However, the Prosser classification system remains the most influential. *See* Gavison, *supra* note 92, at 460 n.118. Even Prosser admits, though, that the privacy tort is subject to change "either soon or at some remote future date." W. PROSSER, *supra* note 188, at 816.

Several theories of privacy have surfaced in recent years. Ruth Gavison argues that the law should protect privacy not only in situations where privacy is the sole value of concern, but also where it functions to promote other goals such as liberty of action, mental health, autonomy, and human relations. Gavison, *supra* note 92, at 444-54. She defines privacy as secrecy, or the extent to which an individual is known; anonymity, or the extent to which an individual is the subject of attention; and solitude, or the extent to which others have physical access to the individual. *Id.* at 428. Privacy is also essential to a "democratic government because it fosters and encourages the moral autonomy of a citizen, a central requirement of a democracy." *Id.* at 455.

Hyman Gross also perceives that the judiciary uses the various aspects of privacy to protect other goals such as autonomy. Gross defines privacy as "*the condition of human life in which acquaintance with a person or with affairs of his life which are personal to him is limited.*" Gross, *supra* note 238, at 36 (emphasis in original).

243. *See* notes 88-177 and accompanying text *supra*.

Telephone Co.,[244] the plaintiff alleged that her estranged husband eavesdropped on her conversations. He had asked the telephone company to install an extension of his wife's telephone line, located at a separate address, in his apartment. The court held that the act of setting up a line for the husband to overhear conversations was not an invasion of privacy without proof that the husband *overheard* the conversations.[245]

The *Roach, Pearson,* and *Nader* cases also suggest that no legally recognized intrusion occurs until information passes from the plaintiff's private sphere to the defendant. In the three cases, information was seen or heard by the defendant, although not necessarily published. Thus, a showing that a protectible sphere has been penetrated may not be sufficient to establish a cause of action. Courts may still require proof of information passing through that sphere. If so, the victim of subliminal communication must prove that the defendant has implanted information in his protected sphere—his brain. The plaintiff would have to rely on the effectiveness of the subliminal communication to prove that an invasion had occurred. The victim of a message that merely tempts or reminds[246] might find it hard to prove that information penetrated his mind. The victim of a subliminal message that actually induced behaviorial change could more easily prove an intrusion. The damage to privacy and autonomy values is not necessarily greater, however, in the more easily proved case.[247]

The three cases previously discussed indicate that once the intrusion is proved to have taken place, the court will assume that harm resulted. The flexibility demonstrated in these cases does not, however, guarantee that the subliminal communication victim will never be required to prove harm. The privacy cases are divided on the issue of damage proof. Although the plaintiff does not normally have to plead and prove special damages in an intrusion action,[248] some courts still require a showing of pain and suffering to recover actual damages.[249] Subliminal communication does not cause pain and suffering, but it does offend the privacy and autonomy values cherished by individuals.

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244. 120 Ohio App. 129, 201 N.E.2d 533 (1963).

245. *Id.* at 134, 201 N.E.2d at 538.

246. *See* text accompanying note 106 *supra* (description of hypothetical (2)).

247. *See* notes 107-19 and accompanying text *supra*.

248. W. PROSSER, *supra* note 188, at 815. "Even in the absence of special damages, substantial compensation could be allowed for injury to feelings as in the action of slander and libel." Warren & Brandeis, *supra* note 187, at 219.

249. *See* Hamberger v. Eastman, 106 N.H. 107, 206 A.2d 239 (1964).

A subliminal message can conceivably result in mental distress, but the victim of subliminal communication is more likely to feel violated than mentally distressed. Hence, proving damages may be an additional and onerous task for the plaintiff in those jurisdictions which require proof of damages.

Finally, the intrusion tort and privacy law as a whole are still evolving, and it cannot be predicted with certainty that a court would find a subliminal intrusion unreasonable.[250] Recall that the analogy between subliminal invasions and other intrusions is imperfect because the other intrusions involve information taken from the victim.[251] Furthermore, other interests may outweigh the victim's privacy and autonomy interests. "It is obvious that privacy will have to give way, at times, to important interests in law enforcement, freedom of expression, research, and verification of data. The result is limits on the scope of legal protection of privacy."[252] Courts have excused intrusions such as spying on a suspected thief[253] or a telephone company monitoring telephone calls[254] because of the societal interest advanced by prevention of crime. The concurrence in *Nader* touched on this point when it stated that intrusions may be excused for social or economic reasons.[255] The implication is that social or economic excuses could negate many claims of subliminal intrusions. For example, the department store owner could assert a defense of preventing theft if he were sued for his use of a subliminal device.[256]

2. *Inadequacies of the Tort Action as a Remedy*

In addition to the practical difficulties in pleading and proving an intrusion case,[257] the intrusion tort is an inadequate remedy for a subliminal intrusion. Private actions compensate for harms only after the

250. Gavison, *supra* note 92, at 421 ("Anyone who studies the law of privacy today may well feel a sense of uneasiness."). *See* note 242 *supra*.

251. *See* text accompanying notes 219-21 *supra*.

252. Gavison, *supra* note 92, at 457.

253. *See, e.g.*, City of Univ. Heights v. Conley, 20 Ohio Misc. 112, 252 N.E.2d 198 (1969).

254. *See, e.g.*, Schmukler v. Ohio-Bell Tel. Co., 116 N.E.2d 819 (Ohio C.P. Cuyahoga County 1953).

255. *See* 25 N.Y.2d at 572, 255 N.E.2d at 772, 307 N.Y.S.2d at 656-57. Bloustein asserted that even where there was a clear violation of privacy, it could be excused by a countervailing public policy or social interest. Bloustein, *supra* note 124, at 1004.

256. Prevention of crime is not always a good defense, however. One court held that obtaining information which led to the prevention of the crime did not justify the intrusion resulting from a fraudulent entry. Dietemann v. Time, Inc., 449 F.2d 245, 249 (9th Cir. 1971).

257. When the tort of infliction of emotional distress first developed, similar problems of pleading and proving that cause of action arose. Those arguments are summarized and answered

injury has occurred. The law would better preserve privacy and autonomy by preventing harms before they occur, especially since the degree of harm caused by subliminal communication is unclear.[258] Moreover, the private action provides no protection for the subliminal communication victim who does not know that he has been subjected to an intrusion. An analogous detection problem exists for victims of electronic surveillance and wiretapping and probably accounts for the paucity of private actions in this field.[259]

> People usually know when they have been physically injured, when their belongings have been stolen, or when a contractual obligation has not been honored. It is more difficult to know when one's communications have been intercepted, when one is being observed or followed, or when others are reading one's dossier. This absence of awareness is a serious problem in a legal system that relies primarily on complaints initiated by victims.[260]

If the government is the intruder, the victim is even less likely to know that his privacy has been invaded. The government has a greater interest than private individuals in concealing the use of surreptitious devices.[261]

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in Eckenrode v. Life of Am. Ins. Co., 470 F.2d 1 (7th Cir. 1972). Some of this court's responses may illuminate problems of the intrusion tort.

Four major reasons had been put forth by courts to justify their refusal to recognize intentional infliction of severe emotional distress. First, it was argued that mental disturbance cannot be measured in financial terms. The *Eckenrode* court replied that "pain and suffering" and "mental suffering" are elements of damage in personal injury and malicious prosecution cases and had been adequately dealt with before. *Id.* at 3.

The second argument was that the mental consequences of the tort are too evanescent to be handled by the law. The court rejected this argument because psychosomatic medicine is now able to discern symptoms and thus could alleviate this problem. *Id.* at 3.

Third, it was argued that the new tort would open the courts to frivolous claims. The *Eckenrode* court disagreed; triers of fact could draw from their own experiences to determine whether the harm involved slight hurt or severe emotional distress. Finally, it was argued that mental harm varies with the individual and would be hard to measure. In response to this problem, the *Eckenrode* court adopted an objective standard of proof. *Id.* at 3.

Although the *Eckenrode* court dispelled the arguments against using the tort of intentional infliction of emotional distress, it should be remembered that practical difficulties still confront the victim of subliminal communication. In particular, proving that an intrusion occurred at all remains a substantial obstacle to pleading a privacy cause of action based on subliminal invasion successfully.

258. *See* notes 74-85 and accompanying text *supra*.

259. 23 OKLA. L. REV. at 227. Another area of privacy law, that of obscene telephone calls, is beset with a similar detection problem. If a victim wants to sue a perverse telephone caller, he must first know who the caller was. *See* Note, *Unwanted Telephone Calls—A Legal Remedy?*, 1967 UTAH L. REV. 379, 390.

260. Gavison, *supra* note 92, at 457 (footnote omitted).

261. *Id.* at 457 n.111; *see* note 43 and accompanying text *supra* (evidence that the government may be using subliminal devices).

Although it can be argued that assessing damages against defendants will deter potentially tortious use of subliminal devices, a better way to prevent harm is to regulate their use so as to preclude the possibility of harm. The following section addresses the shortcomings in the existing law by proposing regulation that will protect individuals from unwanted subliminal communication.

IV. PROPOSAL

This section of the Note examines various regulatory schemes that respond to the dangers of subliminal communication use. First, the relevant constitutional law is discussed. Second, past regulatory attempts and current prohibitions of subliminal communication are summarized. Then three possible ways of restricting subliminal communication are proposed and analyzed: total prohibition of all use and manufacture of subliminal devices; regulation based on the content and location of the subliminal communication; and disclosure requirements that compel subliminal device users to forewarn of both the use and the content of the subliminal communication. Based upon legal, societal, and ethical considerations, strict disclosure requirements emerge as the optimal solution.

A. Constitutionality of Regulating Subliminal Communication

Subliminal communication transmits ideas in much the same way that conscious human speech transmits ideas. Therefore, first amendment considerations that apply to human speech also apply to subliminal communication.[262] Despite the fierce protection afforded first amendment rights, freedom of speech is not absolute. Generally, government can abridge speech in two ways. First, government can regulate the content of speech because of the viewpoints expressed or the effects produced.[263] Second, speech may be proscribed when the government

262. This conclusion does not suggest first amendment law should be applied as if there were no difference between subliminal communication and conscious speech. Subliminal communication is a form of speech, thereby calling the first amendment into play. However, different forms of speech sometimes require different constitutional standards. *See* Kovacs v. Cooper, 336 U.S. 77, 96 (1949) (Frankfurter, J., concurring).

263. L. Tribe, *supra* note 92, § 12-2, at 580. The constitutional inquiry into content is not relevant here, because this Note does not propose to regulate subliminal communication on the basis of content, but rather on the basis of invasion of privacy and autonomy values. If such regulation were enacted, however, and the statute were challenged on constitutional grounds, then content analysis would come into play. *See id.* §§ 12-2 to -19, at 580-682.

seeks a goal independent of the communicative impact or content.[264] This Note advocates regulation of subliminal communication in the interest of privacy and autonomy values, goals that are independent of the content of the ideas expressed. Thus, the second type of first amendment analysis—regulation of speech apart from the content—applies to subliminal communication regulation.

Restricting speech for reasons other than the communicative impact may indirectly result in prohibiting content, since the flow of information has been curtailed in some way.[265] The relevant inquiry is whether the government has *unduly* restricted the flow of information or ideas.[266] This inquiry consists of balancing two variables: "the extent to which communicative activity is in fact inhibited; and on the other hand, the values, interests, or rights served by enforcing the inhibition."[267]

The Supreme Court has permitted government regulation of speech which upholds diverse privacy rights of individuals.[268] One of these privacy rights is the right not to be spoken to.[269] In particular, cases dealing with the unwilling or unsuspecting listener are analogous

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264. *Id.* § 12-2, at 580; *see* Niemotko v. Maryland, 340 U.S. 268, 282 (1951) (Frankfurter, J., dissenting). Goals independent of content of speech can be as straightforward as preventing noise outside a hospital, or as complicated as preserving an individual's personal control over information.

265. L. TRIBE, *supra* note 92, § 12-20, at 682. Form and content are related in this sense. To control the former is to modify the latter. Haiman, *Speech v. Privacy: Is There a Right Not To Be Spoken To?*, 67 NW. U.L. REV. 153, 189 (1972).

266. L. TRIBE, *supra* note 92, § 12-19, at 681.

267. *Id.* § 12-20, at 683.

268. These rights include the right to remain silent. A good illustration of this right can be found in West Virginia Bd. of Educ. v. Barnett, 319 U.S. 624 (1943). *See* notes 150-51 and accompanying text *supra*. The Court has also recognized the right not to be talked about and, in fact, this is probably the most discussed privacy right in conflict with the first amendment. *See, e.g.*, Time, Inc. v. Hill, 385 U.S. 374 (1967). *See* L. TRIBE, *supra* note 92, § 12-14, at 648-51 (discussing the conflict between free speech and personal control over information).

269. *See generally* Haiman, *supra* note 265. The right not to be spoken to has been referred to as that privacy interest called repose—being free from anything that disturbs or excites. Comment, *supra* note 242, at 1451. The right not to be spoken to is related to Prosser's intrusion tort in that there is a concern to preserve the individual's solitude or seclusion. Haiman, *supra* note 265, at 157 n.19.

The privacy concern in the right not to be spoken to should not be confused with other privacy rights that have been identified in constitutional law cases. In particular, much attention has been focused on the privacy right to control intimate decisions about one's life, such as procreation. *See* Griswold v. Connecticut, 381 U.S. 479 (1965); Comment, *supra* note 242, at 1466-78. The privacy right discussed in *Griswold* is more like an autonomy right than a privacy right. The Court has used the word "privacy" in so many contexts that it is essential to clarify what is meant in a particular case to understand the privacy right at issue. Gross, *supra* note 238, at 43.

to the subliminal communication problem.[270] The Court has held that in some cases, freedom of speech permits a speaker to reach only willing recipients.[271] When the audience is unwilling or captive, the first amendment rights of the speaker clash with the privacy rights of the listeners or viewers.[272] This conflict is posed by subliminal communication as well.[273]

An examination of several captive audience cases reveals how the Court balances the competing speech and privacy interests. These opinions include factors traditionally considered in the second type of first amendment analysis: protecting the free exchange of ideas in public forums;[274] and ensuring nondiscriminatory and alternative channels for conveying and receiving speech.[275] The time, place, and manner regulations of the cases discussed below are also viewed by the Court in terms of preserving the privacy rights of captive listeners or viewers.[276] The case-by-case review characteristic of the second kind of speech reg-

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270. *See* notes 323-28 and accompanying text *infra*.

271. Kovacs v. Cooper, 336 U.S. 77, 87 (1949).

272. *Id.* All cases involving the right not to be spoken to—not only those containing captivity problems—present "a sharp conflict between privacy and freedom of speech." Haiman, *supra* note 265, at 157 (footnote omitted).

273. An unwilling or captive audience cannot choose whether to receive the communication. This is the situation created by subliminal communication, in which the recipient's lack of choice undercuts the personal privacy and autonomy values that should be preserved. *See* notes 88-177 and accompanying text *supra*.

The reasons for protecting speech, and the privacy interests in conflict with speech, are arguably based on similar grounds. Much has been written on the relationship between freedom of speech and freedom from unwanted speech.

> The question of whether the former includes the latter, as a matter of sound construction, is a technical one of great difficulty. What is perfectly clear is that the claim to freedom from unwanted speech rests on grounds of high policy and on convictions of human dignity closely similar to if not identical with those classically brought forward in support of freedom of speech in the usual sense.

Black, *He Cannot Choose But Hear: The Plight of the Captive Auditor*, 53 COLUM. L. REV. 960, 967 (1953).

274. L. TRIBE, *supra* note 92, § 12-20, at 684.

275. *Id.* The concept of free speech connotes the right to advocate an idea effectively. Thus, other means of communication must be available if a regulation restricts a certain mode. Kaufman, *The Medium, the Message and the First Amendment*, 45 N.Y.U. L. REV. 761, 772 (1970). In addition, the regulation must be nondiscriminatory. *Id.* For instance, many groups have little money and must rely on door-to-door distribution of circulars to disseminate their ideas. Cutting off this, their only means of communication, might be unconstitutional. *See* Martin v. City of Struthers, 319 U.S. 141, 146 (1943).

276. Normally, all regulation of time, place, and manner of speech must be content-neutral. For example, government may not decide what issues are worth discussing in public. Police Dep't of Chicago v. Mosley, 408 U.S. 92, 95-96 (1972). Cases involving captive audiences are one exception to the content-neutrality rule. L. TRIBE, *supra* note 92, § 12-18, at 673. Hence, regulations involving unwilling audiences may be upheld notwithstanding discrimination on the basis of content. *See* notes 295-306 and accompanying text *infra*.

ulation[277] renders an accurate prediction of the constitutionality of the proposal impossible. However, the principles unifying the captive audience cases will facilitate later analysis of the constitutional aspects of regulating subliminal communication.[278] A discussion of these principles follows the survey of the captive audience cases.

1. *Captive Audience Cases*

In the late 1940's, the Court decided two cases in which loudspeakers were regulated by local municipalities. In *Saia v. New York,*[279] an ordinance required the police chief to license loudspeakers prior to their use in public places.[280] The Court held the statute unconstitutional because it permitted discretionary prior restraint, devoid of standards, to be exerted by the police chief.[281] The majority recognized that loudspeakers are effective tools for public speech, stating that possible abuses by the users of loudspeakers would justify only narrowly drawn restrictive statutes.[282] The dissent urged broader control of the modern device, declaring that "[s]urely there is not a constitutional right to force unwilling people to listen."[283]

One year later, in *Kovacs v. Cooper,*[284] the Court upheld the constitutionality of a New Jersey ordinance that prohibited sound trucks emitting loud and raucous noises.[285] The majority distinguished this ordinance from the one in *Saia*. Here, the speakers could still be used at a lower noise level or off the streets in a park,[286] whereas in *Saia* there was the possibility of total prior restraint.[287] The significance of listener control was underlined by Justice Reed, writing for the majority:

277. L. TRIBE, *supra* note 92, § 12-20, at 682.

278. Finding guiding principles in this area of constitutional law is not an easy task. "Until some fair and acceptable theory can be articulated for balancing those basic interests, we will continue to flounder in a morass of inconsistent and often unjust ad hoc resolutions." Haiman, *supra* note 265, at 158.

279. 334 U.S. 558 (1948).

280. *Id.*

281. *Id.* at 559-60.

282. *Id.* at 561-62.

283. *Id.* at 563 (Frankfurter, J., dissenting).

284. 336 U.S. 77 (1949).

285. *Id.* at 89.

286. *Id.* at 85.

287. *Id.* at 82. Statutes such as the one in *Saia* conferring unrestrained licensing power on administrative officials are overbroad because the officials are granted power to discriminate against certain speech and its uses. Judicial determination is needed in balancing the first amendment rights against other governmental interests in each fact situation. L. TRIBE, *supra* note 92, § 12-35, at 733.

> The unwilling listener is not like the passerby who may be offered a pamphlet in the street but cannot be made to take it. In his home or on the street he is practically helpless to escape this interference with his privacy by loud speakers except through the protection of the municipality.[288]

Despite the *Kovacs* holding that a listener "on the street" may not have his privacy interfered with unwillingly, the Court did not advocate an all-encompassing constitutional right to privacy in public places.[289] In *Public Utilities Commission v. Pollak,*[290] a public bus qualified as a public place for purposes of deciding whether playing a commercial radio station unduly intruded upon the privacy interests of the commuters.[291] The majority reasoned that the listeners were not entitled to privacy on the bus because they had chosen to surrender their privacy rights by boarding the bus.[292] The dissent argued that many commuters were forced to ride the buses.[293] Thus, under the dissenting view, the listeners were captive to the radio programming, and should have had their privacy preserved.[294]

A recent case examined how the content of speech may determine the degree of captivity suffered by the commuter. In *Lehman v. City of Shaker Heights,*[295] the Court held the city's policy of excluding political advertising in city buses to be constitutional.[296] The plurality opinion concluded that the city had properly attempted to avoid the favoritism and administrative problems that would be created by "parceling out limited space to eager politicians."[297] The plight of the captive audience was also considered. In contrast to *Pollak,* the Shaker Heights buses here were characterized as a commercial venture rather than a public forum.[298] As such, the plurality concluded that "innocuous" commercial advertisements were less intrusive to the captive audi-

288. 336 U.S. at 86-87 (footnote omitted). The Court reasoned that the opportunity to reach willing listeners would not be abridged by regulating the particular mode of speech: loud mechanical amplification. Therefore, the ordinance was not unconstitutional. *Id.* at 87.

289. *See* Comment, *supra* note 242, at 1454.

290. 343 U.S. 451 (1952).

291. *Id.* at 465.

292. *Id.* at 464.

293. *Id.* at 468 (Douglas, J., dissenting).

294. *Id.* at 467 (Douglas, J., dissenting).

295. 418 U.S. 298 (1974) (five justices agreed that the first amendment does not give politicians a right to advertise on public transit vehicles, where audiences are captive).

296. *Id.* at 304.

297. *Id.*

298. *Id.* at 303.

ence than "controversial" political advertisements.[299] Justice Douglas based his concurrence solely on the privacy rights of the commuters. He declared that political advertisements and perhaps commercial advertisements as well—although that issue was not before the Court—were intruding upon the commuters.[300] "[T]he right of commuters to be free from forced intrusions on their privacy precludes the city from transforming its vehicles of public transportation into forums for the dissemination of ideas upon this captive audience."[301]

The content and mode of communication have long been considered relevant in deciding the degree of intrusiveness. In *Packer Corp. v. Utah,*[302] the Court upheld the constitutionality of a state statute that forbade billboards and other public advertisements of tobacco, but permitted such advertisements in newspapers, magazines, and stores that sold tobacco. Utah sought to protect its predominantly Mormon population, particularly juveniles, from being bombarded with advertisements for forbidden indulgences.[303] In its decision, the Court relied, in part,[304] on the distinction drawn by the state court between various modes of communication: "Billboards, street car signs, and placards and such are in a class by themselves. . . . [They] are constantly before the eyes of observers on the streets and in street cars to be seen without the exercise of choice or volition on their part."[305] Whereas the reader of newspapers and magazines seeks out the advertisement, the billboard is thrust upon the public.[306]

Two cases decided in the past decade shed additional light on how the Court determines the degree of captivity suffered by an individual, and consequently, the degree to which his privacy is violated by the speech. In *Cohen v. California,*[307] the defendant wore a jacket emblazoned with the words "Fuck the Draft" in a courthouse corridor.[308] The Court stated that although the "mode of expression was thrust upon unwilling or unsuspecting viewers,"[309] in this particular case a

299. *Id.* at 304.

300. *Id.* at 306-09.

301. *Id.* at 307.

302. 285 U.S. 105 (1932).

303. *Id.* at 108.

304. The Court's decision was also based on the determination that it was not discriminatory to distinguish between various speech contents. *Id.* at 108-10.

305. State v. Packer Corp., 297 P. 1013, 1019 (Utah 1931), *quoted in* 285 U.S. at 110.

306. 285 U.S. at 110. *See* note 321 *infra*.

307. 403 U.S. 15 (1971).

308. *Id.* at 16.

309. *Id.* at 21.

person could avert his eyes from the distasteful message. Justice Harlan commented on factors that would determine the degree of an audience's captivity. He stated that the difference between persons confronted with the jacket and persons subjected to loudspeakers blaring outside their homes is that the former could avoid the objectionable speech by simply averting their eyes.[310]

In balancing the privacy and speech interests in a captive audience case, Justice Harlan stated: "[T]he mere presumed presence of unwitting listeners or viewers does not serve automatically to justify curtailing all speech capable of giving offense. . . . [W]e have . . . consistently stressed that 'we are often "captives" outside the sanctuary of the home and subject to objectionable speech.' "[311] *Cohen* illustrates that in the balance between privacy and speech interests, freedom of speech might prove to be the weightier interest in some situations.[312]

A second case involved a Florida ordinance that prohibited drive-in movie theaters from showing films containing nudity if the screen was visible from a public place or street. This statute was struck down as unconstitutional in *Erznoznik v. City of Jacksonville*.[313] While offended viewers observing the movie from the street were characterized as possessing "limited privacy interests,"[314] viewers at home or in an otherwise captive situation would be entitled to a larger measure of privacy protection. In *Erznoznik,* the members of the "public" audience could avert their eyes and therefore their captivity was not a significant factor in the balance of privacy and speech interests.

2. *Unifying Principles: Application of Captive Audience Cases to Subliminal Communication Regulation*

Some general principles from the captive audience cases can provide guidance in balancing the competing speech and privacy interests involved in the regulation of subliminal communication. The cases suggest that a high degree of captivity may result in an intrusion of privacy sufficient to override first amendment interests. The level of captivity varies depending on where the speech occurs and the ability of the recipient to remove himself from that speech. Other factors, such as mode and content of speech, also figure in the Court's decisions. Bal-

310. *Id.* at 21-22.

311. *Id.* at 21 (citations omitted) (citing Rowan v. Post Office Dep't, 397 U.S. 728, 738 (1970)).

312. *See* Comment, *supra* note 242, at 1455. *Cohen* did not decide what degree of captivity would justify curtailment of first amendment rights.

313. 422 U.S. 205 (1975).

314. *Id.* at 212.

anced against privacy concerns is the Court's goal of preserving first amendment rights viewed in the context of the captive audience cases. The cases demonstrate that equal access by communicators and recipients of speech added to the weight of the speech interest. Application of these principles to subliminal communication supports regulation of subliminal communication in the manner proposed in this Note.

a. *Privacy interests as reflected in captivity cases*: The Court focused on two inquiries in the captive audience cases. The first asked where the speech was taking place. The Court made clear its intention to prevent persons from being made captives in their homes.[315] Speech in public places was not permitted to be regulated with the same fervor as speech reaching persons in their homes. For instance, in *Erznoznik,* it was recognized that a drive-in movie screen would be intrusive to persons who could see it from their homes, but would not invade the privacy of viewers on the street.[316] In *Pollak,* a distinction was drawn between the rights of persons in private and public places; public transportation was found to be a public place.[317] The Court in *Lehman* came to a different conclusion, theorizing that public buses are a commercial venture. Although buses are public, they are not considered to offer the kind of public forum traditionally reserved for the free exchange of ideas.[318] The use of captivity as a factor in weighing the privacy interest is affected by the characterization of the forum as public, private, or limited-public (commercial buses).[319]

The degree of captivity turns not only on where the speech occurs, but also on whether the recipient is able to move away from the speech at will. In both *Cohen* and *Erznoznik,* the privacy claims of the viewers were unjustified because their eyes could be averted after the initial impact of the message. In the cases where restrictions on first amendment rights were upheld, the speech was deemed difficult to move away from. For instance, in *Lehman;* the Court realized that commuters

315. L. TRIBE, *supra* note 92, § 12-20, at 684; Haiman, *supra* note 265, at 174-76. The Court has traditionally used the privacy interest of the householder to be free from noise to justify limits on freedom of speech. A. WESTIN, *supra* note 7, at 342.

316. 422 U.S. at 212 n.9.

317. 343 U.S. at 464.

318. Classification of a place as a public forum assures it a special legal status. L. TRIBE, *supra* note 92, § 12-21, at 689. This is partly because of the easy access that public places afford people who lack other channels of communication, and partly because of an historical association of such places with first amendment rights.

319. Thus, in *Pollak,* captivity was not as important a factor because the speech was in a public place. In *Lehman,* the place was labeled nonpublic, so captivity was a more significant factor.

were subjected to advertisements difficult to ignore while in transit. The *Kovacs* Court discussed the high degree of captivity the listener suffered because of his inability to escape the loud noises emanating from the loudspeakers.[320] Finally, in *Packer,* the billboard was described as an intrusion thrusting itself upon the viewer, unlike a newspaper or magazine that the reader could either seek out or ignore.[321]

Despite the use of captivity as a significant component in weighing the privacy interest against the speech interest, captivity by itself has not been enough, until now, to warrant inhibitions of speech.[322] A close examination of the cases described above reveals that other factors entered into the decisions that upheld statutes regulating speech. In *Kovacs,* the loudness of the speakers and the fact that the speakers could be heard in the homes were the major factors in measuring their intrusiveness into the listener's privacy. In *Packer* and *Lehman* the

320. Audio communication might be more intrusive than visual communication, since it is easier to shut out visual impact than to shut out sound. Still, the inability to get away from the communication is the most important factor in captivity cases. Haiman, *supra* note 265, at 182-83. Thus, in *Kovacs,* the homeowner who had no place to go to escape the noises emanating from the loudspeakers blaring up and down the street in front of his home had his right to privacy violated. In *Cohen,* however, the victim could easily have walked away from the message and so was not truly captive.

With subliminal communication, the distinction between audio and visual messages is not significant unless the recipient knows that the communication is occurring. Until then, he does not realize that he is being subjected to a message that he might want to avoid. When he does know that there is a subliminal message, it might be easier to shut his eyes than to move far enough away from sound to avoid it.

321. The *Packer* Court makes an untenable distinction between billboards, on the one hand, and magazines and newspapers on the other. One can easily avert his eyes from a billboard, and in fact may have a harder time "escaping" full page advertisements in a magazine he wants to read. Billboards are not thrust upon an unsuspecting public, but are a common sight in today's landscape. Perhaps in 1932, when *Packer* was decided, billboards were rarer and thus seemed more intrusive.

The distinction made in *Packer* is not the only illogical conclusion made by the Court in the captive audience cases. If the Court is relying on the victim's ability to shut out sights or sounds, then almost no communication will be intrusive enough to warrant regulation. For instance, in *Kovacs,* the person at home could have used earplugs to shut out the noise. Kozyris, *Advertising Intrusion: Assault on the Senses, Trespass on the Mind—A Remedy through Separation,* 36 OHIO ST. L.J. 299, 323-34 (1975). Obviously, there are other significant factors in the captivity cases, such as whether the person is in a place where he should be able to expect privacy, like his home.

322. "The mere fact that a person is a captive does not call into play a constitutional right of privacy." Comment, *supra* note 265, at 1454. "[I]t must be stressed that the concept of a 'captive audience' is dangerously encompassing, and the Court has properly been reluctant to accept its implications whenever a regulation is not content-neutral." L. TRIBE, *supra* note 92, § 12-19, at 677-78 n.13. Haiman argues that captivity should rarely be a factor in regulation of speech, and that as long as an audience can escape from a communication, which is usually the case, they should not be shielded from the initial impact of any communication. Haiman, *supra* note 265, at 193. This approach would not work with subliminal communication because the listener or viewer would not know there was anything to escape from.

content and place of the speech entered the Court's decisions. In *Packer,* the state legislature had restricted tobacco advertisements because tobacco messages were especially intrusive to the Mormon community. The political advertisements in *Lehman* were prohibited because the place of speech was inappropriate.

Regardless of the content presented, subliminal communication itself presents so high a degree of captivity that the Court should find it intrusive; the audience could not avert its eyes, shut its ears or retreat to private places. The subliminal communication audience is an unknowing audience and has even less control than the unwilling audience. The listeners or viewers do not know if they are willing to receive the communication because they are unaware of it. In the more traditional captive audience situations, the recipient could decide whether to shut out the speech. Subliminal communication, however, does not offer the recipient such a choice.[323] Although total prohibition of subliminal communication would eliminate any captive audience problem, important speech interests would be denied by a total ban.[324]

On the other hand, a disclosure requirement for all subliminal device users would permit the recipient of the communication some measure of control over what he hears or sees, or, more precisely, whether he hears or sees it.[325] In this way, disclosure requirements comport with the Court's suggestion in *Martin v. City of Struthers,*[326] that the recipient of a communication prevent speech from intruding upon his privacy. In that case, a ban on daytime door-to-door solicitation was struck down despite the fact that many inhabitants of the community worked at night and slept during the day.[327] The Court reasoned that the occupants of the houses could hang a "Do Not Disturb" sign outside their doors which would protect their privacy interests in a manner less restrictive to first amendment interests.[328]

323. Even in the case of conscious messages, the ability to "tune out" is not always so simple. Black, discussing the *Pollak* decision, declared that riders on the bus do not have to pay attention to the radio program but may find it difficult to withdraw their minds at will. Black, *supra* note 273, at 969.

324. The device user arguably has a speech interest in imparting his message. A total ban would deprive him of the ability to speak through the use of his device. *See* text accompanying note 335 *infra*.

325. Disclosure requirements lower the level of captivity. The recipient is not subject to unsuspected communication because he is aware of the communication. However, there could still be a captive audience problem if the subliminal message, even with its disclosure, was transmitted in a place where people could not avert their eyes or shut their ears (such as on a bus).

326. 319 U.S. 141 (1943).

327. *Id.* at 149.

328. *Id.* at 148.

Disclosure requirements are less restrictive to speech interests because they permit the speech to be transmitted, yet they can prevent the privacy intrusion.

b. *First amendment guarantees not unduly restricted*: Whether a regulation or ban unduly restricts the flow of communication is an element affecting the first amendment balance in captive audience cases.[329] The Court must determine in first amendment cases whether alternative means of communication exist for potential speakers.[330] In *Kovacs,* where the regulation was upheld, the mode itself was not entirely blocked; the loudspeakers could be used at a lower level farther away from the homes.[331] In *Packer,* the advertisers could have appealed to tobacco users through media other than billboards.[332] Similarly, subliminal device users have other means available to impart messages. For example, potential shoplifters could be dissuaded from stealing by signs warning of the discomfort of a stay in prison.

The Court will not, however, uphold a regulation of speech merely because alternative channels of communication are available.[333] The alternative means of communication must permit the speaker to put forth his message effectively.[334] The subliminal device user has chosen subliminal techniques for his messages because the *unknowing* implantation of ideas in the recipient's mind theoretically enhances the message's effect.[335] Although a consciously transmitted message can deliver the identical content as a subliminal message, awareness of the communication on the recipient's part weakens its effectiveness.

The government may, however, "shut off discourse solely to protect others from hearing it dependent upon a showing that substantial privacy interests are being invaded in an essentially intolerable manner."[336] Subliminal communication disturbs privacy and autonomy in such a way as to fall within the meaning of "essentially intolerable."[337]

329. L. TRIBE, *supra* note 92, § 12-20, at 684.

330. Consolidated Edison Co. of N.Y. v. Public Serv. Comm'n of N.Y., 447 U.S. 530, 541 n.10 (1980).

331. *See* text accompanying note 286 *supra*.

332. *See* text accompanying note 303 *supra*.

333. Consolidated Edison Co. of N.Y. v. Public Serv. Comm'n of N.Y., 447 U.S. 530, 541 n.10 (1980).

334. *See* note 275 *supra*.

335. See notes 32-53 and accompanying text *supra* (discussing the varied uses of subliminal communication that effectively exploit subliminal perception).

336. Cohen v. California, 403 U.S. at 21.

337. *See* notes 88-177 and accompanying text *supra*.

Under this view, forbidding subliminal communication altogether may be constitutionally justified.

Minimal regulation of subliminal communication would almost certainly withstand constitutional challenge. Disclosure requirements would be less restrictive for the subliminal device user than a total ban and would avoid the problem of a blanket restriction of a means of communication. Disclosure arguably compromises the desired effectiveness of subliminal communication, yet it still permits the use of the devices.

B. Summary of Past Attempts to Regulate and Current Prohibitions

Enormous public outcry followed the introduction of subliminal devices in the 1950's. Media, political, and civic reactions consisted of "fascination, outrage, and determination to 'fight back.' "[338] One extreme suggestion was "to take this invention and everything connected to it and attach it to the center of the next nuclear explosive scheduled for testing."[339]

State and federal legislatures made more moderate proposals. State legislative committees held hearings on the implications of subliminal audio and visual messages.[340] In 1958, the New Jersey Assembly created the Commission to Study Subliminal Projection, which gathered information from scientific experts to evaluate the effectiveness of subliminal communication techniques.[341] The Commission concluded that the mere existence of subliminal influences would, despite uncertainty as to their effectiveness, warrant legislative protection of the public right of privacy.[342] A statute requiring disclosure was proposed in response to the recommendation of the Commission, but was not enacted.[343] Statutes banning the use of subliminal communication were proposed in New York and California, but also did not be-

338. A. Westin, *supra* note 7, at 281.

339. *Smudging the Subconscious, supra* note 88, at 40.

340. A. Westin, *supra* note 7, at 283.

341. *See* note 17 *supra*.

342. New Jersey Assembly Commission to Study Subliminal Projection, Final Report (1959) (*reprinted in* Katz, *supra* note 17, at 281).

343. This bill was introduced May 18, 1959:

> Any person who, in any public place uses or permits the use by word or symbol, of a subliminal message or messages without having made immediately prior to such use a public announcement thereof and a public display of the entire body of the material to be so used, is a disorderly person. For the purposes of this act a "subliminal message" is defined as a communication projected below the threshold of human awareness.

Katz, *supra* note 17, at 281.

come law.[344]

Federal activity surfaced in 1958 when members of Congress urged the Federal Communications Commission to investigate the possibility of control or prohibition of subliminal advertising.[345] Various proposals were made during the next two years. For instance, a bill subjecting subliminal purveyors to a fine of $5,000 and/or thirty days in prison was aimed at preventing subliminal advertising altogether.[346] A bill to amend the 1934 Communications Act would have forbidden television stations to transmit *any* subliminal messages.[347] As was the case with the state bills, no federal action became law.

Federal regulatory agencies also failed to take formal action in the early stages of subliminal device development. The three major broadcasting networks, however, announced individually that they would not employ subliminal techniques on their radio or television productions.[348] Current self-regulation of the television and radio industries is evidenced by *The Television Code* and *The Radio Code*, published by the Code Authority of the National Association of Broadcasters.[349] These codes contain provisions prohibiting subliminal transmission of messages: "Any technique whereby an attempt is made to convey information to the viewer [listener] by transmitting messages below the threshold of normal awareness is not permitted."[350] If these broadcasting codes are violated, the FCC refers the violation to the Federal Trade Commission for "appropriate action."[351] Since detection of subliminal messages is impossible, however, it can only be assumed that there is honest self-regulation.[352]

C. PROPOSAL

Because of the recent proliferation of subliminal devices in the market-

344. A. WESTIN, *supra* note 7, at 283.

345. *Id.* at 282.

346. H.R. 10802, 85th Cong., 2d Sess., 104 CONG. REC. 2325 (1958); H.R. 1998, 86th Cong., 1st Sess., 105 CONG. REC. 378 (1959) (reintroduced); A. WESTIN, *supra* note 7, at 282.

347. H.R. 11363, 85th Cong., 2d Sess., 104 CONG. REC. 4166 (1958); A. WESTIN, *supra* note 7, at 282.

348. A. WESTIN, *supra* note 7, at 282.

349. CODE AUTHORITY, NATIONAL ASSOCIATION OF BROADCASTERS, THE TELEVISION CODE, (21st ed. 1980), *reprinted in* F. KENT, LEGAL AND BUSINESS PROBLEMS OF THE ADVERTISING INDUSTRY 1980 at 79 (1980); THE RADIO CODE (22d ed. 1980), reprinted in F. KENT, *supra*, at 121.

350. *Id.* at 89, 135.

351. F. STUART, CONSUMER PROTECTION FROM DECEPTIVE ADVERTISING 22 (1974); *see* note 326 *supra*.

352. *See* notes 54-59 and accompanying text *supra*.

place, controls should be enacted immediately, to protect the privacy and autonomy values discussed previously. Three possible remedies are analyzed: (1) total prohibition of the manufacture, sale, and public or private use of subliminal communication devices; (2) regulation restricting uses of the devices to those deemed beneficial to society; and (3) requirements for disclosure of their public and private use and of the content of the message subliminally transmitted. Each alternative is evaluated for the protection it provides the autonomy and privacy values at stake, ease of administration, compliance with constitutional standards, and ability to compensate for deficiencies in the existing law.

1. *Total Prohibition*

Absolute prohibition of the manufacture, sale, and use of subliminal communication devices, if effectively enforced, would eliminate the autonomy and privacy problems created by the use of those devices. However, it is questionable whether such an extreme remedy is appropriate in light of the current technology and understanding of the psychological mechanisms involved.

To the extent that subliminal communication interferes with an individual's capacity to evaluate, criticize, and make thoughtful choices concerning his actions, it poses a threat to the individual himself as an autonomous being, and to our democratic society.[353] Past attempts to pass legislation prohibiting all use of the devices[354] have apparently been motivated by the view that the potential for abusive, illegal uses of the devices was sufficiently serious to justify a total ban.

Prohibition of subliminal device use and manufacture would be the most effective means of guarding against interference with the privacy of an individual's mental processes. Regulation of only certain uses or message content does not completely protect individual mental processes from manipulation.[355]

Procedural deficiencies in the legal system would be overcome by a total ban. Legislation permitting subliminal communication of certain kinds of messages would place an onerous burden on the administrative body designated to review proposed uses of subliminal devices; complete prohibition would be administratively less burdensome than case-by-case regulation. Further, a distinction based on content places considerable power in the hands of those who decide which messages

353. *See* notes 92-119 and accompanying text *supra*.
354. *See* notes 338-47 and accompanying text *supra*.
355. *See* notes 122-39 and accompanying text *supra*.

are socially beneficial.[356]

Given the detection and enforcement problems inherent in the technology itself, total prohibition of the manufacture, sale, and use of subliminal devices may be the only alternative that could be effectively enforced.[357] In any event, it would generally be easier to discover and prove the manufacture of the devices than to discover and prove their use. Total prohibition would also eliminate the necessity of proving that an intrusion had taken place, which is one of the problems in applying a private tort action to the subliminal communication context.[358]

A total ban on the use of subliminal communication might be supported by constitutional principles. Any regulation of subliminal communication invites possible first amendment challenges. Subliminal communication involves such a high degree of audience captivity that the inhibition of speech resulting from a ban may be constituionally permissible.[359] In addition, alternative means of communicating the same message would still be available for the subliminal device user.[360]

A number of countervailing considerations must be balanced against the arguments supporting a total ban. First, the first amendment guarantees freedom to communicate effectively.[361] The subliminal device user might argue that the most effective means of communication has been prohibited, and that the available alternatives are inadequate substitutes. Second, a ban might be considered to be a prior restraint of speech lacking the constitutionally mandated judicial balancing of speech and privacy interests.[362]

In addition to constitutional issues, other factors undercut the appeal of a total ban. For instance, prohibitory legislation would be based on psychological theories and assumptions concerning the effectiveness of subliminal communication that are currently only tentative.[363] To impede a potentially useful technological development by rulemaking not based on responsible findings of fact would set a dan-

356. *See* notes 152-73 and accompanying text *supra*.

357. Athens, *supra* note 2, at 40. In an interview, the executive director of the American Civil Liberties Union was questioned about the ACLU's stance on the use of subliminal devices. He said that at that point the ACLU had no basis for legal action; no one could complain, because "no one knows whether or not his privacy has been violated, and if they think it has they can't quite know when, where, or by whom." *Id.* *See* notes 56-61 and accompanying text *supra*.

358. *See* notes 244-55 and accompanying text *supra*.

359. *See* notes 323-24 and accompanying text *supra*.

360. *See* text accompanying notes 329-335 *supra*.

361. *See* note 275 *supra*.

362. *See* note 277 and accompanying text *supra*.

363. *See* notes 74-85 and accompanying text *supra*.

gerous precedent. There are clearly some uses of subliminal communication that are socially beneficial. These uses would be eliminated by a total ban on the devices.

Immediate and outright prohibition of subliminal communication devices would be a premature response that could pose further problems. Nevertheless, the negative implications of subliminal device use do suggest that less restrictive regulatory proposals should be considered.

2. *Case-by-Case Regulation of Place and Content*

Regulating use of subliminal devices on the basis of the content of the message would be a less drastic remedy than total prohibition. The content of a message could be regulated to promote social goals of health, safety, and morals. For example, laws could ban messages that incite violence but permit messages such as "stop smoking." This form of restriction would probably survive a constitutional challenge as long as the content that is banned is outside the scope of first amendment protection.[364]

The location of subliminal messages could be dictated by the principles established in analogous constitutional law. Public forums are normally open to ideas, but captivity of the audience sometimes permits speech to be regulated.[365] Subliminal communication could be regulated so as to permit the message only in places where persons could escape, or are subject only to the initial impact of the message.[366] This would comport with the constitutional principles elucidated by the Court in the captive audience cases.

Although these arguments are well founded, they overlook a number of considerations. First, as earlier discussion has shown, distinctions based on content and place do not prevent the manipulation of mental processes and interference with an individual's right to make his own decisions.[367] Second, such legislaton would require the establishment of a regulatory agency that would be responsible for monitoring the manufacturers of subliminal devices closely enough to enforce its requirements.[368] Third, this evaluation of subliminal communica-

364. *See* note 263 *supra*.

365. *See* notes 279-322 and accompanying text *supra*.

366. *See* note 322 *supra*.

367. *See* notes 88-177 and accompanying text *supra*.

368. The shortcomings of a regulatory agency's enforcement abilities are illustrated by the failings of the Federal Trade Commission in connection with deceptive advertising. *See* F. STUART, *supra* note 351, at 15-16.

tions on a case-by-case basis would not only be expensive but would also be difficult to administer, requiring the formulation of specific statutory guidelines. Finally, as previously discussed, a vast amount of power and control would be placed in the hands of those making the decisions as to what subliminal messages are "good" for the public.[369]

3. *Full Disclosure of Use and Content of Message*

The optimal solution is a legislative requirement that users of subliminal devices disclose their use of such devices and the precise content of the message communicated. No restrictions would be placed on the location of the devices or the content of the messages they transmit. This remedy best safeguards the values of individual autonomy and privacy while minimizing the problems that militate against the legislative remedies previously discussed.

Full disclosure of the content of the message being transmitted decreases the threat to individual autonomy values. Once an individual is consciously presented with the idea contained in the subliminal message, he is capable of critically evaluating it and either accepting or rejecting it. Although subsequent exposure to the subliminal message may still have an impact on his decisionmaking autonomy, he will have made the decision to subject himself to it. Full disclosure also prevents covert manipulation of an individual's mental processes. The fact that an individual can consent to subjecting himself to a particular subliminal message is critical. It is when an individual does not know that he is being manipulated that the gravest threat to individual privacy is presented.[370]

Disclosure requirements, unlike statutory regulation of subliminal communication on the basis of the content and place, obviate the need for case-by-case review, and the attendant problems of inefficiency, expense, and difficulty of application. Disclosure eliminates the problem of having "beneficial" message content determined by a small group of people who could abuse their power. In terms of legal administration, a disclosure requirement is comparable to a total prohibition of subliminal devices. While satisfying the concerns of privacy and autonomy interests, however, disclosure avoids the pitfalls of banning a potentially beneficial technological development—an optimal result given currently inadequate scientific and psychological data. Disclosure is superior to both total prohibition and selective regulation because it

369. *See* notes 164-73 and accompanying text *supra*.

370. *See* notes 120-51 and accompanying text *supra*.

protects the public while delaying further restrictions until more thorough assessment is possible. In addition, individuals will be able to prevent unconsented violations of privacy without being forced to utilize the problematic private tort action.

Finally, disclosure requirements should survive first amendment challenges. Knowledge that a subliminal message will be transmitted reduces the degree of captivity suffered by the recipient. Once the listener or viewer is aware of the communication, he can choose to escape the message.[371] Additionally, disclosure requirements do not shut off an entire means of communication. Although disclosure may compromise the effectiveness of the subliminal method of communication, the subliminal device user would still be able to impart messages subliminally without violating privacy and autonomy.[372]

The deficiencies of disclosure requirements must also be noted. As long as the manufacture of subliminal devices is allowed, there will be problems with enforcing any restriction on their use because of the difficulty in detecting the use. Further, disclosure does not provide a complete solution to the captive audience problem. To the extent that an individual objects to being subjected to a subliminal device but has no alternative (*e.g.,* on public transportation), its use is intrusive.[373] Although the intrusion is reduced by disclosure, the lack of choice in a captive audience situation makes only a total ban an effective protection of privacy and autonomy.

Additionally, even assuming effective disclosure, there is a valid basis for asserting that the process of subliminal persuasion is offensive because it still manipulates thoughts, forcing an individual to think about an idea that would not otherwise have come to mind. Obviously, the validity of this assertion depends upon how effective subliminal communication really is. This intrusion would not necessarily be avoided by disclosure if the technique was capable of inducing behavior totally contrary to one's normal predispositons.[374] However, the current evidence suggests that it is unlikely that the technique is this powerful.[375] Consequently, more information should be gathered on this issue. Meanwhile, a disclosure requirement will ensure that unde-

371. *See* text accompanying note 325 *supra*.

372. *See* notes 53-58 and accompanying text *supra*.

373. *See* Public Utilities Comm'n v. Pollak, 343 U.S. at 468 (Douglas, J., dissenting) (observing that many persons have no choice but to use public transportation facilities to get to and from work).

374. *See* hypothetical (1) in text accompanying note 106 *supra*.

375. *See* notes 74-87 and accompanying text *supra*.

sirable uses of subliminal communication will be limited. The effect on the device user of having to disclose the message publicly will probably provide the most effective restraint against socially unacceptable messages being transmitted. To the extent that the statute is enforceable, commercial users of the device will be hesitant to use a message that may offend their clientele. Indeed, this is the most powerful aspect of this relatively innocuous statutory scheme of disclosure.

V. CONCLUSION

Despite questions concerning its effectiveness, subliminal communication technology poses serious threats to the rights of individual autonomy and personal privacy. Because of the sanctity traditionally afforded these rights in our society, their loss is arguably not outweighed by possible social benefits accruing from the use of subliminal technology. Therefore, legal protection for the interests threatened by the use of subliminal communication devices is necessary.

Tort law has recognized and extended protection to autonomy and privacy rights in contexts that are analogous to subliminal communication. Unfortunately, although there may be legal precedent for such relief, a private right of action is, for a number of reasons, an ineffective remedy. This Note proposes legislative intervention requiring full disclosure of the fact that subliminal communication devices are being employed and of the content of the messages. Such a requirement is very likely to survive a first amendment challenge. Furthermore, this kind of legislation would not preclude further technological advancement, allowing society to continue benefiting from those aspects of subliminal communication technology deemed socially useful.

Olivia Goodkin
Maureen Ann Phillips

Mr. GLICKMAN. As I understand, you talk about three recommendations, one is total prohibition on subliminal equipment which I think is probably of dubious legislative as well as constitutional value anyway and I think that is your conclusion.

Ms. PHILLIPS. Yes.

Mr. GLICKMAN. The second is regulation of devices on the basis of content and I think you indicate that that has shortcomings as well.

Ms. PHILLIPS. Yes.

Mr. GLICKMAN. The third one is disclosure. That is anybody who uses subliminal devices should disclose the fact. I think you indicate if I summarize you correctly, that as well has problems, but it probably has less problems than any other of the legislative recommendations.

Ms. PHILLIPS. That is correct.

Mr. GLICKMAN. I would ask you that while public disclosure does seem to be a reasonable approach, my question is it seems that it is going to be very difficult to enforce or even to determine if subliminal techniques are being used so I ask you, do you have any suggestions in this area?

Ms. PHILLIPS. Obviously it has been said this afternoon, this is a catch-22. By definition the device is undefectable if it works. Our best suggestion is that manufacturers be held to some kind of responsibility, whether it be a reporting kind of requirement, obviously that has to be done very carefully. Any legislative scheme that is going to breathe down the necks of manufacturers of subliminal communication devices we want to fashion in a manner that we are simply getting at where the devices are going and whether or not compliance with the disclosure requirements is being done.

That is the best alternative we have.

Mr. GLICKMAN. How do you respond to the contention that the stores are only promoting a general predisposition to obey the law. This gets to more of the conceptual questions here. Let me just ask that question. Stores using these devices.

Ms. PHILLIPS. Is your question that the problem is not so severe because people are probably going to do this anyway or probably not going to do this?

Mr. GLICKMAN. Let me ask you this first and it will lead to the second question.

During your research did you find any stores that used these devices? Were any of them willing to disclose their use of these antishoplifting messages to the public?

Ms. PHILLIPS. We didn't undertake to survey stores.

Mr. GLICKMAN. You did not.

Ms. PHILLIPS. We did our research based on what is out in the literature. It is clear I think from what Dr. Becker is doing and what several other people have talked about and the idea is that they are indeed being used in certain places like department stores. We didn't attempt to quantify the numbers using them. I suspect it is rather relatively minimal at this point.

Mr. GLICKMAN. Do you think that the use of subliminal communication could be construed as an unfair trade practice if it is used to sell goods or services?

Ms. PHILLIPS. I think that to the extent that the device can cause people to do something that they wouldn't ordinarily do or have them do something they might be disposed to do but are trying very hard not to do, it is a form of deception. I think you always have to be careful from a legal viewpoint of closing over that line where you are telling advertisers that they cannot say certain kinds of things.

We are trying to get at the fact that they don't tell us that they are saying certain kinds of things.

Mr. GLICKMAN. Have you done any research into the area of informed consent and how it would apply to say, going to a psychiatrist who uses subliminal techniques to try to use those as therapeutic devices in therapy? What I am trying to figure out is there are a lot of legal issues involved in these things and one has to be the issue of informed consent generally.

Have you done research on some of these side issues?

Ms. PHILLIPS. Not that particular issue, no. Earlier in one of the discussions somebody mentioned the fact that at the present stage of use of their particular device, because I believe they said it was an experimental device, disclosure requirements had been somewhat higher.

When it gets to the point where it is no longer an experimental device, I think the disclosure requirements for any kind of medical device are lowered.

At the same time there are still certainly informed consent requirements that a doctor is required to follow.

Ms. GOODKIN. Which, of course, would apply to psychiatrists, also.

Mr. GLICKMAN. Yes. Finally, let me ask you—two of our previous witnesses, particularly Dr. Shevrin, was very, very bearish—I suppose is the best way to classify his statement—in his concern about the potential use of these devices as a way to engage in mind control. Do you think that the kinds of legislation that you are recommending here will in any way deal with that problem?

Ms. GOODKIN. Well, it could to the extent that people are basically honest and there is a lot of self-regulation in so many other areas of the law, so that if there is some kind of law on the books that says that somebody is going to be submitted to a fine if he is ever caught, then there might be some kind of self-regulation.

I was pleased to hear that the businessmen who have marketed these devices are so honest and are careful with the restrictive covenants.

Mr. GLICKMAN. Do you believe them?

Ms. GOODKIN. I believe these two gentlemen. But it is distressing because there could be several others that we do not know about.

Mr. GLICKMAN. You know, when they were testifying, I was thinking—I am sure they are extraordinarily honest people. But I was thinking of Lex Luther in the movie Superman. There are criminal minds in this country that subliminal devices are just a natural for them, if they chose to go that route. I am wondering whether existing criminal laws—I assume there are laws capable of catching and being applicable to these kinds of criminals. It would prevent the use of subliminal devices for criminal purposes. But you think there may be gaps in the law there?

Ms. GOODKIN. I think there probably are gaps. There probably are. I am not sure. I don't know all that much about crminal law. But I don't ever recall seeing any law on the books or in any penal code that addresses anything like this, about mind control or behavioral change.

Mr. GLICKMAN. You would have theft statutes and a variety of property statutes on the books. But I am not sure how easy it would be to prove those violations using these kind of devices.

Ms. PHILLIPS. It is a problem. That is why I think the only way you can get at it is from the top, and some kind of disclosure requirement or reporting requirement on the part of the manufacturers.

Ms. GOODKIN. Or taking it more to an extreme, as I believe Dr. Shevrin suggested, placing a moratorium on the manufacture or use of the devices until there is more research done.

Mr. GLICKMAN. OK.

We thank you very much for your testimony today. We appreciate it.

This concludes this hearing.

We are going to continue—the subcommittee will continue with hearings on computer security in September and those will be announced publicly later on.

The hearing is adjourned.

[Whereupon, at 4:10 p.m. the subcommittee adjourned, subject to the call of the Chair.]

APPENDIX

888 Seventh Avenue, New York, NY 10106 (212) 307-3356

Charles R. Furlong
Director, Corporate Communications

OCT 1 1984

September 26, 1984

The Honorable Daniel Glickman
The United States House of Representatives
2435 Rayburn
Washington, D.C. 20515

Dear Mr. Glickman:

Certain news accounts that have reached us concerning your Subcommittee's recent hearings on subliminal messages give the false impression that Muzak, the corporate entity, or its various services, is in some way associated with subliminal message transmission. Because you presided over these proceedings, I am appealing to you to help correct the record on this important matter.

The facts are as follows:

- Muzak corporate policy expressly forbids the use of our systems or services for the purpose of transmitting subliminal messages;
- Our more than 170 affiliates are aware of this policy and join us in adhering to it;
- Muzak systems or services have not been used to transmit subliminal messages;
- As an operating unit of Westinghouse Electric Corporation, Muzak follows the most exacting business standards and practices.

We urge your assistance in clarifying the public record.

Thank you for your consideration.

Sincerely,

Charles Furlong

WESTINGHOUSE BROADCASTING AND CABLE, INC.
MUZAK IS A REGISTERED TRADE MARK AND SERVICE MARK